

The Languages, Manuscripts, and Canon of the Old Testament

I. The Ancient Hebrew Language

The name.—The greater part of the Old Testament was written in Hebrew, usually called ancient Hebrew in order to distinguish it from Mishnaic and modern Hebrew. Mishnaic Hebrew is the Hebrew of the Christian Era, an artificially revived language in which the Jewish rabbis wrote their scholarly works, and which is now employed as the official language of the state of Israel. The term “Hebrew language,” found for the first time in the prologue to the Apocryphal book Ecclesiasticus (written in 132 B.C.), is also used by the Jewish historian Josephus in the 1st century of the Christian Era, and appears later in the rabbinical writings. The term “Hebrew tongue,” used by Luke in Acts 21:40; 26:14, refers to Aramaic and not to Hebrew. Aramaic was the common language spoken in New Testament times.

The Biblical term used for the language spoken by the Old Testament Israelites is the “language of Canaan” (Isa. 19:18,) or “the Jews’ language” (2 Kings 18:26, 28; Neh. 13:24.)

Characteristics of Hebrew.—Hebrew is a branch of the great family of ancient Semitic languages, which were spoken in Mesopotamia, Syria, Palestine, and Arabia. It is most closely related to the languages spoken by the ancient Canaanites, Phoenicians, and Syrians, and is almost identical with those of the Moabites, Edomites, and Ammonites. The language spoken by the natives of Canaan hardly differed from the Biblical Hebrew.

One interesting characteristic which Hebrew shares with all Semitic languages is that most of its basic words contain three consonants. (It should be noted that the written Hebrew of Biblical times consisted of consonants only. Not until several centuries after Christ, when Hebrew had become a dead language, were vowels added, in an endeavor to preserve a knowledge of how the language had been spoken. These vowels consisted of various marks added below, between, and above the consonants, known as vowel pointings.) Variations in verb forms are generally produced by a change in vocalization, that is, in the vowel sounds. By comparison, the present tense of our verb *sing* can be changed into the past tense, *sang*, and the past participle, *sung*, by merely changing the vocalization. A Hebrew example will show this principle. The verb *to write* contains three consonants, *k-t-b*. The following examples show how, through the use of different vowels, various verb forms are produced, while the three basic consonants remain unchanged:

katab, (he) has written

ketob, write! (imperative)

koteb, writing

katub, (it) is written

katob, to write

Personal pronouns are in most cases added to the verb as prefixes or suffixes. Thus the form “I have written,” *katab-ti*, consists of the basic root *katab* and the ending *-ti*, representing the pronoun; and “I shall write,” *'e-ktob*, of the prefix *'e-* and the root *ktob*.

These short grammatical forms are the reason that Hebrew sentences are brief, compact, and forceful. For example, the seventh commandment, “Thou shalt not commit adultery” (Ex. 20:14), consists of five words in English, but of only two in Hebrew—*lo’ tin’aph*. This brevity in Hebrew expressions is especially noticeable in the poetic parts of the Old Testament. In most cases the Hebrew text has only half as many words as the English translation. The famous 23d psalm, for example, has 57 words in the Hebrew Bible, but 122 in the English translation; Job 30:22, which has six words in Hebrew, has 18 in the KJV and 24 in the RSV.

Hebrew sentence structure is very simple. Sentences are usually short, and are connected one with another by the use of the conjunction “and,” which may also be translated as “so,” “but,” “even,” “then.” A typical example of a great number of short sentences occurs in Gen. 12, where the word “and” is found 29 times in the first 9 verses of the KJV. In the respective Hebrew text the word “and” is found 32 times, the difference being due to the translators’ rendering the word 3 times by other English equivalents.

Another characteristic of the Hebrew language is the lack of certain grammatical forms. It knows no compounds, except in proper names, and a term like the English “landlord” can be expressed only by the genitive form, “lord of the land.” The Hebrew language is also poor in adjectives, and possesses almost no adverbs, a handicap for the ancient writers when expressing abstract thoughts.

In common with other Semitic languages Hebrew possesses a number of sounds that do not exist in Indo-European languages. It has two *h* sounds, for which Hebrew script has two characters, usually transliterated as *h* and *ch*, the latter pronounced as in the Scottish “loch.” It also has several *s* sounds, like *s*, *z*, and *sh* in common with English, but two Hebrew sounds, transliterated *ṣ* and *ṣ̄*, have no equivalents in English, the former being pronounced like *tz*, the latter as a soft *s*. The two Hebrew sounds *’aleph* (transliterated *’*) and *’ayin* (transliterated *‘*) also have no equivalents in English. The Hebrew language originally possessed some additional sounds that were presumably dropped before the invention of the alphabetic Hebrew script. One of them was a second *’ayin*, called *ghayin*, which still exists in Arabic. The early existence of this latter sound in Hebrew can be recognized from the fact that the names “Gaza” and “Gomorrhah” both begin with the same consonant, *’ayin*, as does the name of the high priest Eli. It is only through the ancient translations of the Bible (the Greek Septuagint and later the Latin Vulgate) that we know that the name of the doomed city in which Lot lived was pronounced “Gomorrhah” and not “Omorrah,” and that the name of the high priest of Samuel’s time was “Eli” and not “Geli.”

Hebrew verbal inflection expresses action only in terms of being complete or incomplete, never as being in the present, past, or future, like English verbs. Tense is implied rather than stated. Verbs denoting completed action, commonly spoken of as “perfect,” are generally translated by a past tense, whereas those denoting incomplete action are said to be “imperfect” and are usually translated as if they were future. In general, this procedure may be comparatively accurate, but at times it is entirely misleading. To determine whether the action denoted by the verb actually occurred at the time of writing or speaking, or before or after that time, it is necessary to ascertain from

the context the point of view of the writer. Furthermore, the writer may change his point of view back and forth in a given passage, to the future or to the past, without notice. Thus, if his time viewpoint is in the far future, he may discuss other future events as if they were in the past. In the next statement he may revert to the distant past and describe past or present events as if they were in the future. As if to complicate the matter still further, the *wau* consecutive construction, which binds the component parts of a narrative together in somewhat the same way as our system of paragraphing, often requires that an “imperfect” be understood as a “perfect,” or vice versa.

At the time earlier translations of the Bible were made into English, this peculiarity of Hebrew verbs was imperfectly understood, with the result that the English is often at variance with the Hebrew. In general, more recent translations tend to reflect the time element of Hebrew verbs more accurately than do the earlier translations. At the same time, modern translations may not always represent the actual time viewpoint of the writer, owing to the fact that a decision as to the writer’s viewpoint often, particularly in predictive prophecy, depends upon the reader’s concept of inspiration. One who believes in the gift of prophecy will recognize that the prophet is projecting his mind into the future, often the remote future. But one who denies the validity of the predictive element in prophecy will say that the prophet is simply describing past events. It is obvious from this discussion that in order to ascertain with any degree of accuracy the precise time element in a given prophetic statement, the reader must (1) have a valid concept of inspiration, (2) discover the time viewpoint of the author in terms of his own concept of inspiration, and (3) interpret the verb tenses in harmony both with the requirements of Hebrew grammar and with the author’s time viewpoint.

An illustration of this problem occurs in the latter part of the book of Isaiah, commonly referred to by higher critics as “deutero-Isaiah,” on the theory that an anonymous second writer is the author. Partly on the basis of the fact that Isaiah speaks of the suffering of the Jews during the period of Babylonian captivity as if it were in the past (Isa. 40:1, 2; etc.), these critics conclude that chs. 40 to 66 were written by another author or authors after the captivity. However, the fact that the verb forms denote *completed* action in no way necessarily even implies that the events they describe had occurred at the time the prophet wrote. Evidently Isaiah had been shown the captivity and restoration by prophetic inspiration, and having already seen these events, he speaks of them as if they were in the past.

Another instance of the way in which the prophet’s mind projects itself into the future occurs in Isa. 53. In the Hebrew of vs. 1 to 9 (and similarly in the RSV), Isaiah projects his mind into the prophetic future and speaks of the sufferings of Christ as if they were in the past. But in v. 10 his time viewpoint slips back to his own day, and he continues to describe the same event as if it were in the future. A comparison of the differences in the time element of the verbs of Isa. 53, as rendered in the KJV and the RSV, makes apparent the problem of translating Hebrew verb “tenses.”

Linguistic Differences.—Slight dialectal differences between the various writers of the Bible can also be observed. The existence of such differences among the several tribes of Israel was well known in Bible times. This is learned from the story of the Ephraimites, who could not articulate the consonant *sh*. As a result, they pronounced the word “shibboleth” as “sibboleth” (Judges 12:5, 6).

On the whole, however, the language of the Hebrew Old Testament shows great uniformity. Linguistic differences between earlier and later writings are very small. This fact has been explained by critical scholars as evidence that all books of the Old Testament were produced in a comparatively short period. However, it is more reasonable to conclude that Hebrew had at an early time been fixed as a literary language, that is, it experienced only slight changes in the course of the centuries during which the Old Testament books were written.

However, there are marked differences between the prose and poetry of the Old Testament. To the latter belong not only Psalms and Job but also many parts of the prophetic books like Isaiah. Hebrew poetry differs from prose by its use of a poetic vocabulary and parallelisms. The reader of the KJV is not always aware of this parallelism, since the KJV is printed as if all the Bible were written in prose. But if one opens a modern translation, like the RSV, the parallelism is noticeable at once, because the poetic sections of the Old Testament are printed as poetry, as the following example, taken at random from the Psalms, will show.

“Give ear, O my people, to my teaching;
incline your ears to the words of my mouth!
I will open my mouth in a parable;
I will utter dark sayings from of old,
things that we have heard and known,
that our fathers have told us.
We will not hide them from their children,
but tell to the coming generation
the glorious deeds of the Lord, and his might,
and the wonders which he has wrought (Ps. 78:1–4, RSV).”

The poetic books abound in synonyms, which almost constitute a special poetic vocabulary of ancient Hebrew. Job 4:10, 11 may serve as an illustration of this. In these two verses are found five different terms for “lion,” which, for lack of better equivalents, have been translated in the KJV by such prosaic terms as “lion,” “fierce lion,” “young lions,” “old lion,” and “stout lion.” That the wealth of expressions in the poetic books of the Old Testament has often been a source of despair to the novice in Hebrew can easily be understood.

Since ancient Hebrew has been a dead language for many centuries, few people learn it so that they can use it as freely as a modern tongue. Those, however, who go to the trouble of thoroughly mastering ancient Hebrew discover unexpected beauties in it. It is a fact that the vividness, expressiveness, and beauty of Hebrew leave it unsurpassed as a vehicle of religious poetry.

Reformation Produces Revival of Hebrew Studies.—For many centuries Christians were not interested in the Hebrew Old Testament, nor were many attempts made to master its language. Only two of the Church Fathers, Origen and Jerome, made serious efforts to learn Hebrew. From the apostolic age to the time of the Protestant Reformation Jewish scholars were almost the sole guardians of the ancient language in which the Old Testament had been written.

The Reformers, being keen students of the Word of God, supported or produced new Bible translations. However, they insisted that each translation should be based on the original language, and not on a previous translation, be it Greek or Latin. This required a

thorough knowledge of Hebrew among Protestant translators and scholars. The Reformation therefore provided a great impetus to Hebrew studies, as can be seen from the fact that in the 16th and 17th centuries 152 Hebrew grammars were published by Christian scholars, as compared with 18 by Jewish scholars.

During the last hundred years many Hebrew, Canaanite, and other inscriptions written in ancient Semitic languages have been discovered. Their contents have illuminated many Old Testament passages, thrown light on numerous obscure Hebrew words, and given illustrations for a better understanding of the grammar of the Old Testament language.

It should be stated, however, that a knowledge of ancient Hebrew with all its supporting evidence, by no means guarantees a right understanding of the Holy Scriptures. Some of the greatest Hebraists of the recent past have been the Bible's most destructive critics, whereas many men and women of God have soundly and forcefully expounded the sacred pages of the Old Testament without knowing Hebrew, and have led souls to a knowledge of truth. A knowledge of Hebrew is, of course, desirable and useful to the minister of the Word. However, modern translations are generally well made and more or less accurately convey the thoughts of the original writers. The best exponent of the Scriptures is therefore not necessarily the greatest Hebraist, but the man who has the greatest measure of the Holy Spirit, by which he searches out "the deep things of God" (1 Cor. 2:10).

II. Biblical Aramaic

A few chapters of the books Ezra (chs. 4:8 to 6:18; 7:12–26) and Daniel (chs. 2:4 to 7:28), one verse in Jeremiah (ch. 10:11), and a word in Genesis (ch. 31:47) are written, not in ancient Hebrew, but in Aramaic. Aramaic is about as closely related to Hebrew as Spanish is to Portuguese. However, the differences between Aramaic and Hebrew are not those of dialect, and the two are regarded as two separate languages.

The Dissemination of Aramaic.—The original home of Aramaic was Mesopotamia. Some Aramaean tribes, the Chaldeans, lived in southern Babylonia around Ur, others had their homes in Upper Mesopotamia between the Chebar (Khabûr) River and the great bend of the Euphrates, with Haran as their center. The fact that the patriarchs Abraham, Isaac, and Jacob had connections with Haran is probably responsible for the statement made by Moses that Jacob was an "Aramaean" (Deut. 26:5, in Hebrew, and RSV; KJV has "a Syrian"). From its home in northern Mesopotamia Aramaic spread southward over all Syria. When the Syrian city-states, whose populations spoke Aramaic, were destroyed by the Assyrians in the 8th century B.C., their populations were transplanted to different parts of the Assyrian Empire. This caused a tremendous spread of Aramaic, which was so much simpler to learn than most of the other languages of the ancient Near East. Finally Aramaic became the lingua franca, the international language, of the civilized world, and became the official language first of the Neo-Babylonian Empire and then of the Persian Empire.

The Aramaic Sections in the Bible.—The fact that Aramaic had become an international language under the Babylonians and Persians was the reason that some parts of the Bible were written in Aramaic. Officials living under Aramaic-speaking Babylonians, like Daniel, or those working for the Persians, like Ezra, were men who used Aramaic by mouth and pen just as readily as their native Hebrew. The book of Daniel clearly reflects the bilingual abilities of its author. In writing down the experience that Daniel had in connection with Nebuchadnezzar's dream he began his narrative in

Hebrew, but when he came to the place where he introduced the speech of the wise men to the king, who spoke “Aramaic” (Dan. 2:4, in Hebrew, and RSV margin; KJV reads “Syriack”), he switched—perhaps unconsciously—over to the language of these men, and continued to write in it for several chapters before returning to his native Hebrew.

There was a time when the existence of Aramaic portions in the books of Daniel and Ezra were taken as proof of a very late date for these books. However, since numerous Aramaic documents from the time of Daniel and Ezra have been found in nearly every part of the ancient Near East, it can be shown that it was not strange for these men to insert in their books Aramaic documents, as Ezra did, or to relate historical events in Aramaic as both Daniel and Ezra did.

Aramaic, Christ’s Language.—As the result of the Babylonian captivity, the Jews, during the last centuries of the pre-Christian Era, adopted Aramaic in place of the Hebrew language. By the time of Christ, Aramaic had become the mother tongue of the population of Palestine. A number of Aramaic expressions in the New Testament show clearly that it was the language of Jesus. “Talitha cumi” (Mark 5:41), “Ephphatha” (Mark 7:34), and “Eloi, Eloi, lama sabachthani?” (Mark 15:34) are some of Christ’s Aramaic expressions.

The Bible was still read in Hebrew in the synagogue services in the time of Christ, but many people, especially the women, could not understand it. It had therefore become customary for the readers in the synagogues to translate Scripture passages into Aramaic. Later on, written translations of the Old Testament into Aramaic were made—the so-called Targums. Spoken Hebrew had largely become obsolete in pre-Christian times, and has experienced only artificial revivals; Aramaic has been kept alive continuously as a spoken language to the present day, and is still used in certain parts of the Near East, where it is known as Syriac.

III. Old Testament Manuscripts

Ancient Writing Material.—The ancients used different kinds of writing material, like clay or wooden tablets, chips of limestone or broken pieces of pottery, tanned animal hides, or papyri. The last-mentioned writing material, the forerunner of our modern paper, was made from the papyrus plant that grows in marshes. For longer documents, this was presumably the oldest writing material used in Egypt. In view of the fact that the first books of the Bible may have been written on papyrus scrolls, an explanation of this writing material is therefore in place.

The stem of the papyrus plant was cut into thin strips nine to ten inches long. The strips were placed alongside each other, and a second layer was glued over them crosswise under pressure. The sheets thus produced were then hammered, and rubbed with pumice stone in order to produce an even, smooth surface. The sheets, generally measuring not more than 10 inches square, were then pasted together into rolls, usually not longer than 30 feet, although much longer rolls are known—the famous Papyrus Harris in the British Museum being 150 feet long. Writing was usually done only on the horizontal layer (recto), but occasionally also the vertical layer (verso) was used.

The oldest inscribed papyri known are from the Fifth Egyptian Dynasty, dated in the middle of the 3d millennium B.C. Egypt was a great papyrus-producing country, and exported large quantities of this writing material. Since Moses, the author of the earliest Bible books, had received his education in Egypt, and wrote in the vicinity of Egypt, it is possible that the first books of the Bible were written on papyrus scrolls.

The information is gained from Jeremiah that documents were kept in jars (ch. 32:14), a statement whose truth has been corroborated by many ancient records found in jars during the excavations of old cities.

From the 15th century B.C. on, the use of leather scrolls is attested in Egypt by documentary evidence. The earliest extant leather manuscripts come from the 5th century B.C. Leather scrolls were used in cases where more durable writing material was needed. Hence the Dead Sea scrolls presently to be mentioned, coming probably from a synagogue library, are of leather.

Vellum (or fine parchment), a specially prepared hide from young animals—cattle, goats, sheep, or deer—did not come into prominence before the 2d century B.C. It was the most expensive of all writing materials, and was used only for very valuable manuscripts, like the Bible manuscripts of the Christian church during the 4th century, which by then had come to honor and wealth.

The writing pens used on papyri were of reed beaten into a fine brush, but for writing on hides, sharp-pointed pens were used. Most of the ink employed by ancient scribes was made of soot with a gum solution, but ink specimens have been found, dating as far back as the 6th century B.C., which contain some iron, probably from oak galls.

The Dead Sea Scrolls.—Prior to 1947 the earliest known manuscript of any part of the Hebrew Bible was a fragmentary papyrus leaf containing the Decalogue and the words of Deut. 6:4, 5. This document, known as the “Nash Papyrus,” comes from about 100 B.C., and was until 1947 about one thousand years older than any other known Hebrew Bible manuscript.

In 1947 the greatest discovery of Biblical manuscripts of modern times was made, when some Bedouins found several leather scrolls and fragments in a cave near the northwestern shore of the Dead Sea. Since such scrolls had never before been found, the native owners had some difficulty in disposing of them. Buyers feared they might be forgeries. Finally, however, the scrolls came partly into the hands of Prof. E. L. Sukenik of the Hebrew University, and partly into the possession of the Syrian monastery in Jerusalem. Dr. John C. Trever, then acting director of the American School of Oriental Research in Jerusalem, was the first scholar who recognized their antiquity, and brought the scrolls to the attention of experts in America.

In the spring of 1948, when the news first reached the Western world of their discovery, the Dead Sea scrolls caught the imagination of Christians and Jews alike as no other archeological discovery had done since the finding of the unspoiled tomb of King Tutankhamen in Egypt some 25 years earlier. A feverish hunt for more scrolls began when it became clear that the dry climate of the Judean desert had preserved perishable ancient material such as leather scrolls, which in any other part of the Holy Land would have disintegrated long ago because of the humid winters. Soon more caves were discovered containing scrolls and thousands of scroll fragments. In the area of Qumran, where the first cave was located, 11 manuscript-containing caves were ultimately discovered, some by Bedouins, others by archeologists. These are called the Qumran scrolls, but the term “Dead Sea scrolls” includes, in addition, those from other areas of the dry desert of Judea near the Dead Sea. Some came to light in the *Wadi Murabba‘at*, southeast of Bethlehem, others in the *Wadi Hever*, south of En-gedi, and some in the excavations of the ruins of the Jewish fortress of Masada, destroyed by the Romans in A.D. 73.

Khirbet Qumran, a ruin near the first cave, lies near the mouth of the *Wadi Qumran*, which enters the Dead Sea about 9 miles south of Jericho. When excavated, it turned out to have been the community center of a strict Jewish sect, probably the Essenes. The excavation shed much light on the life of the sect, whose members had been the owners of the scrolls found in the vicinity. In this monasterylike compound the sectaries worked, ate their meals, performed their religious rituals, and worshiped their God together, though they lived in the surrounding caves. The structures at Qumran were destroyed in the first Roman-Jewish War (A.D. 66-73). During that time the members of the sect may have perished, because the group seems to have vanished at that time. Many of the scrolls had apparently been hidden in the caves when destruction threatened. Evidently the owners never returned to retrieve their books.

The manuscripts discovered there are of a varied nature. The first cave yielded one complete and one incomplete copy of Isaiah, a part of a commentary on Habakkuk, fragments of Genesis, Deuteronomy, Judges, and Daniel—all written in the Hebrew square script, which was used after the Babylonian Exile—and fragments of Leviticus written in the pre-exilic script. Also found early in other caves were Psalms, Samuel, and Leviticus in fairly large portions. Eventually fragments of all the other Old Testament books except Esther were found in the caves. Other Hebrew books represented by scrolls or fragments are known apocryphal and pseudepigraphical works, previously unknown books of a sectarian nature, and some secular works. The script is consonantal, since the Hebrew did not yet have vowels.

The study of these scrolls has produced a new branch of Biblical science. Even now, nearly three decades after the discovery of the first Qumran cave, not half of all manuscripts discovered have been published. Yet the articles and books dealing with the Dead Sea scrolls number many thousands, and the bibliography of this published material fills several volumes. One scholarly journal, the *Revue de Qumran*, is devoted to nothing else but scroll studies. This indicates how much interest exists among scholars in the scrolls from the Dead Sea.

During the first years after their discovery, a heated battle raged among scholars concerning their genuineness and age, but the voices of doubt have long ago been silenced. When the same kinds of scrolls as those found by the Bedouins came to light in explorations and excavations carried out by professional archeologists it became abundantly clear, even to the strongest doubter, that the Dead Sea scrolls were no modern or medieval forgeries, but genuine ancient manuscripts.

It is generally accepted that the Qumran scrolls date from the 3d century B.C. to the 1st century A.D. The manuscripts found in the other areas mentioned above come from the 1st and 2d centuries A.D. These finds have provided us with Bible manuscripts that are a thousand years earlier than the earliest Hebrew Bible texts known before these scrolls came to light. This is of great importance, because we have thus obtained samples of every Old Testament book, save one, as it existed during the time of Christ's ministry. In other words, we now know what the Bible of Christ's time looked like; in fact, we have discovered that its text differed scarcely at all from the one on which our modern translations were based. While the Dead Sea scrolls contain numerous linguistic variants, such as in spelling or grammatical form, for example, these differences are of such a minor nature that they are hardly apparent in any English translation of the scrolls if one compares their text with that of any of the other English Bible translations. The scrolls

thus bear an eloquent witness to the faithful transmission of the Hebrew text through the many centuries of copying the Bible by hand. The discovery of the Dead Sea scrolls has provided us therefore with proof that in the Old Testament we still possess the Bible of Jesus Christ in the same form He knew and recommended.

The Work of the Masoretes.—The Jewish scholars of the first five centuries of the Christian Era completed the work of dividing the Bible text into greater and smaller paragraphs, as they are still found in the Hebrew Bible texts today. These divisions should not be confused with the chapters and verses found in our English Old Testament, which are of later origin. The Jewish rabbis introduced also a number of symbols to point out the location of difficult passages, which were explained in their writings. Since no Bible manuscripts written during this period are extant, our information concerning the work of these Jewish scholars with regard to the Hebrew Bible is gained from the Talmud.

Since about A.D. 500, the Jewish scholars who perpetuated the tradition concerning the Old Testament text have been called Masoretes, from *Masora*, the Hebrew technical term for the “early tradition as to the correct form of the text of the Scriptures.” These men made efforts to ensure the exact transmission of the text to future generations, and laid down the results of their labors in monographs and annotations to the Bible.

Since the Hebrew language had been dead for centuries, replaced completely by Aramaic as the spoken language, there was danger that its pronunciation would be entirely lost in the course of time. It was for this reason that the Masoretes invented a system of vowel signs that were added to the Hebrew consonants. Reading of the Hebrew Bible was thus simplified, and the retention of the then-existing pronunciation was guaranteed. It should not be overlooked, however, that the pronunciation known through the current Hebrew Bible text is that of the Masoretes of the 7th century of the Christian Era, which, as we know now, varies somewhat from that of the Old Testament period.

The Masoretes also invented two complicated systems of accents, one for the prose books and another one for the Psalms and Job. The accents consist of many different signs added to the text, designed to indicate the various shades of pronunciation and accent.

Whenever the Masoretes felt that something should be read differently from the way it was written in the text, they put their suggested changes in the margin, but did not change the text itself. An example is the reading of the name of God, consisting of the four Hebrew consonants *YHWH* (called the *Tetragrammaton*), which was probably pronounced *Yahweh* in ancient times. But for centuries devout Jews, fearing to profane the holy name, had not pronounced it. Instead, when they came to the word *YHWH*, they said *'Adonai*, Lord. The Masoretes, true to their principle of not changing the Scriptures, left the four Hebrew consonants *YHWH* wherever they were found, but added to them the vowels of the word *'Adonai*. Every initiated Jewish reader coming to this word would therefore read *'Adonai*, although he had only the vowels of the word *'Adonai* added to the consonants *YHWH*. Since this principle was not understood by Christians when they learned to use the Hebrew Bible in the early days of the Reformation, the divine name of God was transliterated as Jehovah and pronounced accordingly.

It may be useful to explain in this connection the devices used by the translators of the KJV (also followed in the RSV) to indicate in the English which of the different Hebrew terms for the Deity is found in the Hebrew text. They followed the custom of reading "LORD" for the divine name, a usage sanctioned by the apostles and Gospel writers in the New Testament. However, not only the word *YHWH*, pronounced 'Adonai by the Jewish readers, is found in the Hebrew Bible as the name of God, but also the word 'Adonai, "Lord," with consonants as well as vowels of 'Adonai. Therefore, the name *YHWH* is rendered "LORD," but in cases where it follows the word 'Adonai, *YHWH* is rendered "GOD." Note that in the KJV and RSV the word LORD or GOD with the small capitals always represents the personal name *YHWH*, which was transliterated "Jehovah" in the ASV. Wherever the word 'Adonai (consonants and vowels) is found it is given as "Lord," and the Hebrew term 'Elohim is always translated as "God" when it refers to the true God. If these simple rules are kept in mind, it is easy to recognize which of the divine names or titles are used in the Old Testament. The following examples may be helpful as a summary of the foregoing facts:

God, 'Elohim (Gen. 1:1)

LORD God, *YHWH* 'Elohim (Gen. 2:4)

LORD, *YHWH* (Gen. 18:33)

Lord, 'Adonai (Gen. 18:30)

Lord GOD, 'Adonai *YHWH* (Gen. 15:2)

The Masoretes also established exact and detailed rules to be followed in the production of new Bible copies. Nothing was left to the decision of the scribes, neither the length of lines and columns, nor the color of the ink to be used. The words of each book were counted, and its middle word established, to provide means for checking the accuracy of new copies. At the end of each book a statement was attached giving the number of words the book contained, and also telling which was the middle word, besides some other statistical information.

Extant Manuscripts of the Masoretic Text.—With the exception of the Dead Sea scrolls all of our oldest Hebrew Bible manuscripts are of the late Masoretic period. Probably the oldest of these is a 9th-century copy of the Pentateuch in the British Museum. However, the date is not absolutely certain, since it is based on the style of its writing. The earliest dated Hebrew Bible manuscript is a copy of the Latter Prophets in Leningrad, written in A.D. 916. Other famous copies of the Hebrew Bible are two from the 10th century: Codex Laudianus of Oxford, containing almost the whole Old Testament, and Codex Ben Asher of Aleppo, which in 1948 largely escaped destruction in anti-Jewish riots.

Other old Hebrew Bible manuscripts were found in a Cairo synagogue, where they had escaped destruction. These are now for the greatest part in Russian collections, and in the Cambridge University Library, England. The reason for the dearth of old Hebrew Bible manuscripts is a Jewish law that prohibits the use of worn-out and dilapidated Bibles. They had to be buried or otherwise destroyed to prevent any profanation of the divine name of God which they contained. If, therefore, a manuscript became old and worn out it was put into a room of the synagogue, called genizah, to be disposed of later.

To date only one genizah has been found containing old manuscripts—the one in Cairo. So far as we know, all other Bible manuscripts of the first millennium of the Christian Era have been lost.

However, the extreme care with which manuscripts were written by the Jewish scribes is a guarantee of the accuracy of the extant Bible copies. The discovery of the Dead Sea scrolls, which has recently provided texts that are a thousand years older than the previously oldest known Hebrew Bible copies, has demonstrated the truth of the assertion that the text of the Old Testament has been handed down to us practically in the same form as Christ knew it.

IV. The History of the Old Testament Canon

A correct understanding of the history of the Bible and the collection of its books not only is of great interest to the reader of the Word of God but is necessary to refute the false claims of those who are influenced in their thinking by higher critics. Since it has occasionally been claimed that the collection of Old Testament books was made either just before Jesus Christ's ministry or at the Jewish council of Jamnia after the destruction of Jerusalem by the Romans in A.D. 70, one must know the facts to see the fallacy of such claims.

The Canon.—The word *canon* was used by the Greeks to designate a rule invested with authority. The apostle Paul uses the word in this sense in Gal. 6:16. From the 2d century on, appeal was made continually to the rule of Christian teachings under phrases like the “canon of the church,” the “canon of truth,” or the “canon of faith” (see Brooke Foss Westcott, *History of the Canon*, 7th ed., p. 514).

To designate the collection of Bible books recognized as a rule of faith and practice, the word *canon* was used for the first time by the church Father Origen (A.D. 185?-254?), who said that “no one should use for the proof of doctrine books not included among the canonized Scriptures” (*Commentary on Matt.*, sec. 28); Athanasius (A.D. 293?-373) then called the whole collection of books sanctioned by the church the “canon,” and this is the meaning by which the word found entrance into the language of the church (Westcott, *History of the Canon*, pp. 518, 519).

Modern and Ancient Division of the Old Testament.—The term, the “Canon of the Old Testament,” means simply the 39 books of the Protestant Old Testament, which were written by inspired prophets, historians, and poets in pre-Christian times. The present division into 3 sections—historical, poetical, and prophetic—containing 39 books, originates from the Greek and Latin translations of the Bible where such a division is found. The Hebrew Old Testament consisted of 24 books, which were divided in the following 3 main divisions:

1. The Law (*torah*) containing the five books of Moses, or the Pentateuch.
2. The Prophets (*nebi'im*), subdivided into:
 - (a) four “Former,” Joshua, Judges, (1 and 2) Samuel, and (1 and 2) Kings, and
 - (b) four “Latter,” Isaiah, Jeremiah, Ezekiel, and the twelve Minor Prophets as one book.
3. The Writings (*kethubim*), consisting of the remaining eleven books, of which Ezra–Nehemiah as well as 1 and 2 Chronicles formed one book each.

The threefold division of the Hebrew Old Testament in the time of Christ is attested by His own words, as follows: “All things must be fulfilled, which were written in [1] the

law of Moses, and in [2] the prophets, and in [3] the psalms [the first book of the third division]" (Luke 24:44).

Before the Babylonian Exile.—The origin of many of the individual books of the Old Testament can be traced back to their authors. (The authorship is discussed in the Introduction at the beginning of each book in this commentary.) However, no information is available in regard to greater collections of Old Testament books before the Babylonian exile. Pre-exilic references to Biblical books refer to the Pentateuch.

God admonished Joshua that "this book of the law shall not depart out of thy mouth" (Joshua 1:8), and Joshua, Moses' successor, encouraged the people "to keep and to do all that is written in the book of the law of Moses" (ch. 23:6). He held also a great gathering where instructions were publicly read from "the book of the law" (ch. 8:34).

David also knew the Pentateuch and attempted to live according to its precepts, as can be concluded from the counsel he gave to his son Solomon to keep the Lord's statutes, commandments, judgments, and testimonies, "as it is written in the law of Moses" (1 Kings 2:3). Also King Amaziah of Judah is given credit for following certain regulations as they were "written in the book of the law of Moses" (2 Kings 14:6). These intermittent Biblical testimonies show that the Pentateuch was known from the time of Moses to the period of the kings of Judah. However, there were times, especially under the reign of wicked kings, when the Scriptures were hardly known at all, and had, as it were, to be rediscovered. This happened, for example, in the time of King Josiah, when during temple repair work "the book of the law" was found and read, and its regulations once more put into effect (2 Kings 22:8 to 23:24).

At the Time of Ezra–Nehemiah.—In the books of the Old Testament that were written after the Exile, such as Ezra and Nehemiah, reference is made, either by name or by quotation, to various of the earlier books of the Bible. Reference is also made to certain books that have been either partly incorporated into postexilic Scriptural books or lost. The 5 books of Moses, mentioned under names like "book of Moses," "law of the Lord," "book of the law of the Lord," etc., are referred to 7 times in 1 and 2 Chronicles, 17 times in Ezra and Nehemiah, and once in Malachi. That the book of the law (*torah*) was considered to be inspired and "canonical" in the 5th century B.C. is shown by the great reverence the people demonstrated when that book was opened (Neh. 8:5, 6). It would seem that the expression "book of the law" (*torah*) had a wider meaning than only the "Pentateuch," since the same term is used once by Jesus in referring to the Psalms when introducing quotations from Ps. 35:19 and 69:4 with the words "written in their law" (John 15:25).

Many books of pre-exilic origin survived the destruction of Jerusalem and the Babylonian captivity. This can be seen from the fact that Daniel used the book of Jeremiah during the exile in Babylonia (Dan. 9:2), and that about 20 different books are mentioned in the books of Chronicles as either having provided the source material for the contents of that work, or as books where additional information could be secured concerning many points that were only lightly touched in Chronicles. The postexilic chronicler (see 2 Chron. 36:22) referred to many books, such as "the book of Samuel the seer" (1 Chron. 29:29), "the book of Nathan the prophet" (1 Chron. 29:29; 2 Chron. 9:29), and "the story of the prophet Iddo" (2 Chron. 13:22).

That Ezra and Nehemiah took a definite part in the collecting of the sacred books is indicated by Jewish tradition. The Apocryphal second book of Maccabees, written during

the early part of the 1st century B.C., contains a letter allegedly written by Palestinian Jews and Judas Maccabaeus to the Jewish philosopher Aristobulus and other Jews in Egypt (2 Macc. 1:10). This letter refers to the “archives or memoirs of Nehemiah,” and states also that Nehemiah had “founded a library and collected the books about the kings and the prophets, and the books of David” (2 Macc. 2:13, translated by Mofatt in R. H. Charles, *The Apocrypha and Pseudepigrapha of the Old Testament*, vol. 1).

Another writer who places the completion of the Old Testament canon in the time of Ezra and Nehemiah is the Jewish historian Josephus, who shortly after the fall of Jerusalem, A.D. 70, made the following significant statement:

“From Artaxerxes to our own time the complete history has been written, but has not been deemed worthy of equal credit with the earlier records, because of the failure of the exact succession of the prophets.

“We have given practical proof of our reverence for our own Scriptures. For, although such long ages have now passed, no one has ventured either to add, or to remove, or to alter a syllable” (Josephus, *Against Apion* i. 8, Loeb ed.).

This statement shows that the Jews in Christ’s time were convinced that the canon had been fixed in the time of Ezra and Nehemiah, who both worked under Artaxerxes I. They were reluctant to reverse this action or to supplement the Scriptures as fixed 500 years earlier, especially since no man clearly recognized as a prophet had risen since the days of Malachi.

Josephus’ significant statement agrees well with observations which the careful reader can make in the Old Testament itself. The latest historical books, Chronicles, Ezra, Nehemiah, and Esther, bring the history of Israel, for instance, down to the period following the Exile. The Chronicles, and their continuation, Ezra–Nehemiah, record events that took place during the 6th and 5th centuries, but not later. The writing of the Old Testament, as it is known now, must have been completed, therefore, by the end of the 5th century B.C., for the further continuation of the history was not added to the earlier record. It was not even preserved along with the canonical Scriptures. The canon, therefore, must have been closed. For a further statement on the relation of Ezra to the collecting of the sacred books, see PK 609.

Between Nehemiah and the Maccabees.—There are hardly any records extant of the history of the Jews during the 4th and 3d centuries B.C. Only two records of this period are known which have any bearing on the history of the Bible: (1) the tradition of Alexander’s visit to Jerusalem, and (2) the production of the Greek translation of the Old Testament in Egypt, called the Septuagint (generally abbreviated LXX).

Alexander’s visit to Jerusalem, according to Josephus, took place after the fall of Gaza, in November, 332 B.C. As the story goes, when he came to punish the Jews for having refused to aid him with troops in his war against the Persians, he was met outside of the city walls of Jerusalem by a procession of priests, led by the high priest, Jaddua. The king was then said to have been brought to the Temple, where he was given an opportunity to offer sacrifice, and was shown from the book of Daniel that one of the Greeks—presumably Alexander—was designated by divine prophecies to destroy the Persian Empire. This pleased Alexander so much that he bestowed favors on the Jews (Josephus, *Antiquities* xi. 8. 4, 5). The story as told by Josephus has been regarded by most scholars as fictitious. Its acceptance would require the existence of the book of Daniel in the time of Alexander the Great, whereas they hold that the book was not

written before the period of the Maccabees, in the 2d century B.C. However, there is much internal evidence in favor of the truth of this story (see the Introduction to the Book of Daniel). If true, the story provides an added proof that the Jews not only possessed that book but were also studying the prophecies it contained.

The Septuagint translation was produced for the Greek-speaking Jews in Egypt, but quickly gained a considerable circulation among the widely dispersed Jews. The sources for its origin are the reputed *Letter of Aristeas*, written possibly between 96 and 63 B.C., a statement made by Philo, an Alexandrian Jewish philosopher of the time of Christ (Philo, *Life of Moses* ii. 5-7), and Josephus' writings shortly afterward (*Antiquities* xii. 2; *Against Apion* ii. 4). In these works a legendary story is told about the translation of the Pentateuch by 72 Jewish scholars in 72 days during the reign of King Ptolemy II of Egypt (285-247 B.C.). These men, the story tells us, worked independently, but produced 72 copies of one translation in which every word agreed, showing that their translations had been carried out under the inspiration of the Holy Spirit. Although this story was fabricated with the purpose of securing a ready acceptance for the Greek translation among the Jews, and of placing it on an equal footing with the Hebrew text, it doubtless contains some historical facts. One of them is that the translation started with the Pentateuch, and that it was carried out under Ptolemy II. It is not known when the translation of the whole Old Testament was completed. This may have happened in the 3d century B.C. or early in the 2d century. However, the completed Septuagint is mentioned by the translator of Jesus ben Sirach's Ecclesiasticus in the prologue which he added to this Apocryphal work. The prologue was written about 132 B.C., and refers to the Greek Bible as something then in existence.

While referring to the book Ecclesiasticus, or "Wisdom of Jesus ben Sirach," which was composed in Hebrew about 180 B.C., it is of value to point out in passing that its author had access to most of the books of the Old Testament. This is seen from the fact that he either quoted from or referred to at least 19 of the 24 books of the Hebrew Bible.

From the Maccabees to Christ.—In the 2d century B.C. a determined attempt was made by the Seleucid king Antiochus Epiphanes to Hellenize the Jews and crush their nationalistic spirit. He took away their religious rites, changed their way of life, and attempted to destroy their sacred literature. After a description of the efforts made at that time to introduce pagan rites, 1 Macc. 1:56, 57 says the following in regard to this point:

"And the books of the Law which they found they rent in pieces, and burned them in the fire. And with whomsoever was found a book of the covenant, and if he was (found) consenting unto the Law, such an one was, according to the king's sentence, condemned to death" (translated by Oesterly in Charles, *Apocrypha and Pseudepigrapha*, vol. 1).

It was probably during this time when all the books of the Pentateuch were forbidden to be read that the practice arose of reading in religious services passages from the prophets instead of those from the Law. These passages from the prophetic books were later called *Haftarith*, and were read in connection with sections from the Law as soon as the restrictions were lifted (cf. Luke 4:16, 17; Acts 13:15, 27).

Many books escaped destruction during that time of national distress, when the whole religious life of the Jews was at stake. The Jewish tradition claims that the saving of many books was due to the courage and efforts of Judas Maccabaeus. In the second book of Maccabees, written in the beginning of the 1st century B.C., the statement is made that

Judas had collected “for us all the writings which had been scattered owing to the outbreak of war. They are still with us” (2 Macc. 2:14).

About 132 B.C. Jesus ben Sirach’s grandson translated into Greek his grandfather’s Hebrew work, called Ecclesiasticus. He added a historical prologue to it, in which the threefold division of the Old Testament canon is mentioned three times.

It was about that time also that the Apocryphal first book of Maccabees was written. The book of Psalms is quoted (1 Macc. 7:16). Daniel is mentioned (1 Macc. 2:60), as well as his three friends, together with Abraham, Joseph, Joshua, David, Elijah, and other early men of God. The definite impression is gained here that the author of 1 Maccabees considered the book whence he received his information concerning Daniel as one of the old works, and not as a new addition of the Maccabean age, as higher critics of the Bible claim.

The first witness to the expression “Scripture” used to designate certain parts of the Bible is the *Letter of Aristeas* (see secs. 155, 168, in Charles, *Apocrypha and Pseudepigrapha*, vol. 2), written possibly between 96 and 63 B.C. This term, regularly used by the later New Testament writers with reference to books of the Old Testament, is employed by Aristeas to designate the Pentateuch.

The Testimony of Christ and the Apostles.—Christ testified not only to the existence of the threefold division of the Hebrew Bible (Luke 24:44), but also to the fact that the sequence of the books was known to Him. The sequence of the books in the Hebrew Bible is quite different from that of our modern English Bibles. According to the threefold division of the Hebrew Bible already explained, the section Writings comes last, with the two books of Chronicles (one in Hebrew) at the end of the Old Testament. When Jesus said to the Pharisees that from them would be required an account for the crimes committed “from the blood of Abel unto the blood of Zacharias, which perished between the altar and the temple” (Luke 11:51; cf. Matt. 23:35), He made reference to the first martyr, Abel, mentioned in the first book of the Bible (Gen. 4:8), and to Zechariah, whose martyrdom is described in the last book of the Hebrew Bible (2 Chron. 24:20–22). Had Jesus used the word “unto” in a chronological sense, He would have mentioned the prophet Urijah, who was killed by Jehoiakim more than a century later than Zechariah (Jer. 26:20–23). Christ’s statement thus provides clear evidence that the sequence of the Hebrew Bible was already firmly established in His time.

That Zechariah is called the “son of Barachias” in Matt. 23:35, but the “son of Jehoiada” in 2 Chron. 24:20, should not be explained, with some commentators, as the result of confusion on the part of Matthew or a later copyist with the prophet “Zechariah, the son of Berechiah,” who lived centuries later, in the time of Darius I (Zech. 1:1). Zechariah’s father Jehoiada may have had a second name, as so many Jews had, or Barachias may have been either Zechariah’s maternal grandfather or else his real father and Jehoiada the more famous grandfather. The word “son” to mean “grandson” was recognized in Hebrew usage (see 2 Kings 9:2, 20). Whatever may be the correct interpretation of this seeming difficulty, commentators from Jerome on have almost unanimously seen in the Zacharias mentioned by Jesus the man of 2 Chron. 24:20.

Jesus Christ was, of course, a firm believer in the authority of the Bible as it existed in His time, and so were His apostles. This is clearly seen from several statements. Jesus said, “Ye do err, not knowing the scriptures” (Matt. 22:29). Jesus submitted proof of His Messiahship by citing the three divisions of the Old Testament Scripture, saying that “all

things must be fulfilled, which were written in the law of Moses, and in the prophets, and in the psalms, concerning me” (Luke 24:44; cf. vs. 25–27). He also placed belief in Moses’ writings along with belief in His own teachings: “If ye believe not his writings,” asked the Saviour, “how shall ye believe my words?” (John 5:47; cf. v. 46). Paul stated that God had made certain promises “by his prophets in the holy scriptures” (Rom. 1:2). He said to Timothy, a younger fellow worker, “From a child thou hast known the holy scriptures. . . . All scripture is given by inspiration of God” (2 Tim. 3:15, 16). Another equally certain claim is made by the apostle Peter: “We have also a more sure word of prophecy; . . . no prophecy of the scripture is of any private interpretation. For the prophecy came not in old time by the will of man: but holy men of God spake as they were moved by the Holy Ghost” (2 Peter 1:19–21). These statements show clearly that Christ and His apostles were firmly convinced that the Old Testament, the Bible of their day, was inspired and authoritative.

The expression “Old Testament” is used for the first time with reference to books of the Hebrew Bible in the apostolic age. In a much-discussed passage the apostle Paul says that a veil remained on the eyes of the Jews until his day “in the reading of the old testament” (2 Cor. 3:14). Commentators are divided in their interpretation of the term “old testament” in this passage, but since Paul refers to something that is read by the Jews, the most plausible explanation is to see in it a reference to either the Pentateuch or the whole Hebrew Bible. Since the term Old Testament implies the existence of the term New Testament, it is possible that the apostle and other Christians may already have used the term New Testament for writings describing the life and work of Christ—perhaps one of the Gospels.

The many quotations from the Old Testament found in the New also bear an important witness to the authority ascribed to the books of the Old Testament by the authors of the Christian writings. Some of the quotations are short, and many expressions in the book of Revelation are very similar to those found in Daniel, but may not actually be quotations.

The writer of this article counted 433 *clear* quotations in the New Testament, and found that 30 of the 39 Old Testament books are definitely quoted. The names of 10 books or their authors are mentioned in 46 New Testament passages; the inspiration of 11 Old Testament books is attested by quotations introduced with the words that their author was God or the Holy Spirit, and the term “scripture” is applied in 21 passages from 11 Old Testament books, while in 73 passages Old Testament statements are introduced by the technical term “It is written.”

First-Century Jews.—Philo of Alexandria (died about A.D. 42) was a Jewish philosopher who wrote in the time of Christ. His works contain quotations from 16 of the 24 books of the Hebrew Bible. That his writings contain no quotations from Ezekiel, Daniel, the Chronicles, and five other small books may be accidental.

The historian Josephus, writing about A.D. 90, made a most important statement on the canon in his work *Against Apion*, which because of its significance is quoted here: “We do not possess myriads of inconsistent books, conflicting with each other. Our books, those which are justly accredited, are but two and twenty, and contain the record of all time.

“Of these, five are the books of Moses, comprising the laws and the traditional history from the birth of man down to the death of the lawgiver. This period falls only a little short of three thousand years. From the death of Moses until Artaxerxes, who succeeded Xerxes as king of Persia, the prophets subsequent to Moses wrote the history of the events of their own times in thirteen books. The remaining four books contain hymns to God and precepts for the conduct of human life”

(Josephus, *Against Apion* i. 8, Loeb ed.).

Josephus' statement that the Bible of the Jews contained 22 books needs an explanation, because it is known that there were actually 24 books in the Hebrew Bible before and in his time. His division into 5 "books of Moses," 13 books of "prophets," and 4 books of "hymns to God and precepts for the conduct of human life," follows more closely the sequence of the Septuagint than that of the Hebrew Bible, an understandable procedure, since he wrote for Greek-speaking readers. But the basis for his statement that the Hebrew Bible had 22 books was probably due to a Hebrew practice that arose among certain men who sought to adjust the number of books of the Scriptures to accord with the number of the letters in the Hebrew alphabet. Josephus probably counted Ruth along with Judges, and Lamentations along with Jeremiah, or possibly left out two of the books that may have seemed to him of little importance.

Another Jewish author of that time, writing the spurious work called 4 Ezra (the 2 Esdras of the Apocrypha), is the first witness who clearly indicates that the number of books in the Hebrew Bible was 24.

Toward the end of the 1st or at the beginning of the 2d century a council of Jewish scholars was held at Jamnia, south of Jaffa in Palestine. This council was presided over by Gamaliel II, with Rabbi Akiba, the most influential Jewish scholar of that time, as its leading spirit. Since some Jews considered certain Apocryphal books as of equal value with those of the canonical Old Testament books, Jewry wanted to place its official stamp on a canon which had existed unchanged for a long time, and which, it was felt, needed safeguards against additions. This council therefore did not establish the Old Testament canon, but only confirmed a position held for centuries in regard to the books of the Hebrew Bible. It is true, however, that in certain quarters the canonicity of the books Ecclesiastes, Canticles, Proverbs, and Esther was questioned. But Rabbi Akiba, the greatest and most influential Jewish scholar of his time, dispersed the doubts by his authority and eloquence, and these books retained their place in the Hebrew canon.

The Early Christian Church.—In the writings of the early church Fathers all of the 24 books of the Hebrew Bible were accepted as canonical. It was only in the Eastern church that an occasional slight doubt in regard to the inspiration of the book Esther was raised. However, the Apocryphal Jewish books were not accepted by the earliest writers of the Christian church. The writings of the so-called Apostolic Fathers, who produced their works after the death of the apostles to about A.D. 150, do not contain any real quotations from the Apocrypha, but only a few references to them. This shows that the Apocryphal books originally enjoyed no equality with the canonical writings of the Old Testament in the mind of these church leaders.

The church Fathers of the later periods, however, make hardly any difference between the Apocrypha and the Old Testament, and introduce quotations from both collections with the same formulas. This development does not seem strange in view of the early trends of apostasy noticeable in many quarters of the early Christian church. When the simplicity of the Christian faith was forsaken, men turned to books that supported their non-Biblical stand in regard to certain teachings, and found this partial support in the Jewish Apocryphal books, rejected even by the Jews themselves.

The Eastern and Western Churches.—Jerome (5th cent.), the translator of the Bible into Latin, called the Vulgate, which has become the official Roman Catholic Bible, was the last writer of his church who strongly argued in favor of accepting nothing but the true Hebrew writings, and of rejecting the Apocrypha. However, most Western

church leaders accepted the Apocryphal books in his time, and assigned to them the same authority as to the Old Testament. This can be seen from the writings of various authors of the Middle Ages, some teachings of the Roman Catholic Church, which find their basis in the Apocrypha, and from the decisions made by several regional church councils (Hippo in 393, Carthage in 397). The Western church generally has recognized the Apocryphal books as having the value of the canonical books of the Old Testament, but writers of the Eastern churches have generally used them much more sparingly than their Western colleagues.

The first ecumenical council that took an action in favor of accepting the Apocryphal books of the Old Testament was the Council of Trent. Its primary objective was to lay plans for combating the Reformation. Since the Reformers sought to remove all practices and teachings which had no Scriptural basis, and the Catholic Church could find no support for some of its doctrines in the Bible, except as the Apocryphal writings were considered part of the Bible, it was forced to recognize them as canonical. This canonization was done on April 8, 1546, when for the first time a list of canonical Old Testament books was published by an ecumenical council. This list contained not only the 39 books of the Old Testament, but also 7 Apocryphal books, and Apocryphal additions to Daniel and Esther. Since that time these Apocryphal books, not even recognized by the Jews as canonical, have the same authoritative value for a Roman Catholic as any book of the Bible.

Protestant Views on the Canon.—The Reformers accepted the 39 books of the Old Testament as canonical without exception, and almost without any reservations. However, the Apocryphal books were generally rejected. Martin Luther translated them into German and published them with the remark on the title page that they “are books which are not equal to the Holy Scriptures, but profitable and good for reading.”

The Church of England was more liberal toward the use of the Apocrypha. The *Book of Common Prayer* in 1662 prescribed the reading of certain sections of the Apocryphal books for various feast days, as well as for daily reading during some weeks in the autumn. Yet the Thirty-nine Articles make a difference between the Apocrypha and the canon.

The Reformed Church took up the issue of the Apocrypha during its Council of Dordrecht in 1618. Gomarus and other theologians demanded the removal of the Apocrypha from the printed Bibles. Although this demand was not followed, the council’s denunciation of the Apocryphal books was nevertheless so vigorous that the Reformed Church from that time on was strongly opposed to the use of the Apocrypha.

The greatest fight against the Apocryphal books took place in England during the first half of the 19th century. A great mass of literature was produced from 1811 to 1852, investigating the merits and errors of these extracanonical books of the Old Testament. The result was a general rejection of the Apocrypha by church leaders and theologians, and a clear decision by the British and Foreign Bible Society to exclude the Apocrypha henceforth from all the Bibles published by that society.

Summary.—The brief survey of the history of the Old Testament canon leads to the conclusion that the collection of books we call the Old Testament took place in the 5th century B.C., with Ezra and Nehemiah, the two great leaders of that restoration period, most probably the leading spirits in this work. The basis of this conclusion is the fact that

the Old Testament does not contain any later books. Jewish tradition of the 1st century B.C. confirms this conclusion.

The production of the Septuagint, beginning in the 3d century B.C., is evidence for the existence of an Old Testament canon at that time. Other witnesses are Jesus ben Sirach's quotations and references to the Old Testament early in the 2d century B.C., a few years later the edict of Antiochus Epiphanes to destroy the sacred books of the Jews, and the statements of Jesus ben Sirach's grandson about 132 B.C., mentioning the threefold division of the Hebrew Bible and the existence of its Greek translation in his time.

Jesus Christ and the apostles definitely believed in the authority and inspiration of the Hebrew Bible, as is seen from numerous testimonies witnessing to this fact. Their Bible had the same threefold division and probably the same sequence of books as found in the present Hebrew Bible. Furthermore, hundreds of quotations taken from at least 30 Old Testament books show the high esteem in which these writings were held by the founder of the Christian faith and His immediate followers.

The history of the Old Testament canon in the Christian church following the apostolic age centers in the question about the acceptance or rejection of the Jewish Apocrypha. Though these books were rejected by the apostles and the Christian writers up to the middle of the 2d century, and indeed, even by the Jews themselves, these spurious writings unfortunately found a welcome in the Christian church toward the end of the 2d century. From that time on they were never banned from the Catholic Church. The Reformers took a firm stand in rejecting the Apocrypha, but after their death the Apocryphal books found entrance once more into some Protestant churches, although they were finally ejected from most of them in the 19th century.

More serious is the view of modernists concerning the Old Testament. They believe neither in the inspiration of the Old Testament books nor in their early origin. This secularizing process, which places the Old Testament on the same level with other ancient literature, is more harmful for the Christian church than the former indifference toward the Apocrypha, since it destroys the faith of the believer in the divine origin of those books of the Bible of which Christ said, "They are they which testify of me" (John 5:39).

Every Christian believer must therefore be convinced of the divine origin of these Old Testament books by means of which the Christian apostles proved the soundness of their faith and doctrines. That these books have survived the several national catastrophes of the Jewish nation in antiquity, and the insidious attacks of the dark forces inside and outside the Christian church, is a strong proof that these writings have enjoyed divine protection.

The Creationist Model of Origins

A QUESTION that occurs early to a student of the Bible is the discrepancy between the account of Genesis 1 and 2, which stipulates a creation by divine fiat, and the widely held theory of evolution, which postulates origins for both organic and inorganic systems by non-supernatural means.

The purpose of this article is to survey the prominent issues that are encountered in the development and defense of a creationist model for origins that is consistent with the basic theological commitment of the Seventh-day Adventist Church. (In this context, *model* means a system of corroborating data into a feasible concept.) References are included that will aid the reader who wishes to investigate any of these issues more fully.

Consideration is given to the origin of elementary matter, the basic elementary particles and atoms with which the physical universe is constructed; the complex chemical compounds from which living cells are constructed; living cells themselves; organisms that are composed of vast numbers of specialized living cells; and man, the most complex feature of the natural world. Finally, some observations are made regarding the assignment of age to fossils on the basis of data furnished by radiometric dating techniques.

I. Seventh-day Adventist Position Regarding the Genesis Creation Account

Throughout its history the Seventh-day Adventist Church has held that the first 35 verses of the book of Genesis contain a valid, factual account of literal events that occurred during seven consecutive rotations of Planet Earth—the creation week. This interpretation places within creation week the origin of the parent stock for all organisms supported by the planet and also the origin of the physical circumstances on which the continuing life of this parent stock depends.

Nature of Evidence Regarding Origins.—The uniqueness and singularity of creative acts such as those described in Genesis 1 place their explanation or verification beyond the range of scientific procedures. Knowledge concerning the nature and time of such events is dependent on the testimony of reliable witnesses—on revelation. If it should be proved that complex biochemicals or physical structures associated with living organisms could develop from simpler states as a consequence of the ordinary properties of matter, such proof would not constitute evidence that these features actually evolved in this manner; it would introduce only the evolutionary process as one possibility in addition to the fiat-creation stipulation set forth in the Bible.

The human mind, perhaps any created intelligence, is incapable of understanding the origin of the universe. A godless approach to the problem begins with previously existing inanimate matter that possesses capabilities that naturally result in the development of life and all other features of the contemporary universe. A God-related approach begins with an intelligence capable of designing, constructing, and maintaining all features of the universe. The origin of either the primary matter required by the first model or the intelligence required by the second model is humanly incomprehensible.

The Biblical Creation Model.—The principal postulates of the Biblical creation model that is implicit throughout this commentary may be stated as follows (Neufeld 1974b):

1. The physical substance of the universe and the laws of interaction that characterize this substance were brought into existence by the Creator and are the manifestation of His continued purpose.
2. Within six successive rotations of Planet Earth approximately 6,000 years ago, the Creator organized and/or created the planet to provide an ideal environment for living organisms and placed there the ancestors of all the organisms that have lived on this planet.
3. The initial perfect creation, which reflected the personality of the Creator, whose principal characteristic is love, was subsequently modified as a result of sin, so it became progressively less ideal, with death the fate of all organisms.

4. The originally created organisms were endowed with capability for propagation with modification, which has resulted in a wide range of adaptation and speciation within basic categories.
5. The surface of the planet was radically transformed in a post-creation event, known as the Flood, that buried remains of the previous world and resulted in a post-Flood world that in many situations provided a drastically different environment for living organisms.

Contrasting Theories.—Currently fashionable evolutionary theory postulates that (1) both inorganic and organic matter developed spontaneously through fortuitous random interaction, (2) suitable supporting environments, as well as living forms, developed slowly over several billion years, (3, 4) the present varieties of plants and animals are at the growing edge of a natural development process that generally progresses from simple to complex, from one basic kind of organism to another, and (5) the present environment is the product of normal physical processes operating over hundreds of millions of years.

A large segment of the contemporary Christian world accepts the basic evolutionary scenario by postulating it to be the manner in which God has worked in bringing the universe and the life on earth to its present state. This viewpoint is known as theistic evolution (Key 1959). It avoids tension with the scientific community and supplies the creative power of God to replace the implausibilities in the evolutionary model; but it considers the Biblical specifications concerning creation, the Flood, and the early history of man to be metaphorical rather than factual. Theistic evolution is a feature of religion that is humanistic rather than revelational and God-centered. It must be evaluated on the basis of the evidence supporting the claims for inspiration and authority of Scripture made by Jesus and the Bible writers, and on the compatibility of the presumed evolutionary process with the character and capability of God as presented in the Bible.

The Range of Scientific Evidence Regarding Origins.—The scientific data on which a creation model may be based arise from several areas: (1) the nature and organization of matter, both inorganic and organic; (2) the nature of the fossil record; (3) the variability of organisms comprising the modern biosphere as determined by field observation and laboratory experimentation; (4) the structural features and relationships of the plutonic, volcanic, and sedimentary formations in the earth's crust. The first three of these areas will be reviewed in this article. The fourth will be treated in the article on "Genesis and Geology," p. 70.

Biblical creationism is accepted on the basis of evidence for the integrity of the Biblical testimony, personal experience with the Creator, and knowledge concerning the plausibility of alternative concepts. For a positive witness to the creationism presented in the Bible it is desirable to have an understanding of the plausibility for the origin of life by alternate means. The currently fashionable evolutionary model for origins involves pre-existence of primary matter and energy, chemical evolution, spontaneous generation of life, and biological evolution—formation of complex biochemicals from simple inorganic compounds, organization of these biochemicals into a living cell, and subsequent development of the elementary cell into complex organisms, including man, with each successive step following as a natural consequence of innate properties of matter.

The Origin of Elementary Matter.—Since 1860 the literature of the Seventh-day Adventist Church has presented more than one viewpoint concerning creation of the

elementary matter from which the physical structure of living organisms is formed (Smith 1860). Some scholars and church leaders have taken the position that all elementary matter in our planet came into existence at the beginning of creation week. Others have understood the testimony of Scripture to suggest, or at least allow, that the substance of earth and solar system is the result, at least in part, of creative activity before creation week. Published statements indicate that some Adventist scholars have advocated first one and then the other of these viewpoints (Price 1902, 1941, 1946; Clark 1946, 1962, 1977). More recently it has been suggested that Planet Earth may presently contain elementary matter, some of which (1) is the result of creative activity at an earlier time in the history of the universe, (2) some that came into existence during creation week, and (3) some that was created in physically negligible but ideologically significant amount in connection with miracles such as Christ's feeding the multitudes (Brown 1958, 1971). It is an essential feature of each of these viewpoints that all things throughout the universe, both visible and invisible, were created by Christ (John 1:3; Col. 1:16, 17; Heb. 1:2).

A deist viewpoint that was encountered during the early development of the Seventh-day Adventist Church described God's creation in terms of human concepts and experience. Although this viewpoint placed the work of God on an infinitely greater scale than that of man, it made God's creative activity similar to man's in the utilization of previously existing material and in the formation of a product that would function regularly without continuous attention on the part of its Creator. Ellen G. White repeatedly opposed this viewpoint, stating that God is not indebted to or dependent on pre-existent matter in His creative activity and that the laws of nature are not self-acting but are the continuing expression of God's will and creative power (Neh. 9:6; Col. 1:17; Heb. 1:3; White 1884, 1897, 1903, 1904, 1905).

II. The Testimony of Biochemistry

The Origin of Biochemicals.—A common evolutionist model for the origin of life begins with chemical evolution. Chemical evolution requires sequences of spontaneous chemical reactions that convert simple molecules, each containing only a few atoms, into giant compounds of thousands of atoms. These compounds are then organized into simple cells according to the following scenario: (a) the formation of biomonomers such as amino acids and mononucleotides; (b) the condensation of these building-block-type molecules into polymers such as proteins and nucleic acids; (c) self-assembly of biopolymers into supramolecular complexes such as ribosomes and membranes; (d) the organization of these complexes into organelles such as nuclei, endoplasmic reticula, and mitochondria; and (e) the formation of a simple cell by the assembly of these organelles.

The scope of this article does not permit detailed consideration of all of these. The purpose here is to evaluate the mere plausibility of such a scheme in the light of current understanding of the workings of living cells.

Extended scientific observations have established that for a reaction to be spontaneous two processes will take place. First, the reacting substances will lose what is called free energy, reaching a lower energy state as products. Second, with rare exception these products will be more disordered than were the reactants. Reactions that do not meet the above requirements for spontaneity will occur only if forced to do so with the expenditure of energy. Processes that occur spontaneously without intelligent direction and energy input always proceed toward lower free energy, lower complexity, lower

information content, and a state of higher probability. This principle is often referred to as the second law of thermodynamics.

Amino acids are considered to be fundamental building blocks of organisms. They are made up of carbon, hydrogen, oxygen, nitrogen, and sometimes sulphur in exact proportions and in critically exact spatial arrangement. When chemically bound together in long, chainlike fashion and in appropriate sequence they form proteins.

Amino acids do not now occur in nature by themselves, and there is no evidence that they can be formed spontaneously from their basic constituents under present circumstances on earth. (Minute traces of some of the simpler amino acids have been found in a few meteorites [Cronin and Moore 1976].) Proponents of chemical evolution, therefore, are compelled to seek for plausible mechanisms that could yield amino acids under postulated primitive conditions. Up to possibly 18 of the 20 amino acids necessary for organisms may be synthesized by mixing methane (containing carbon and hydrogen), ammonia (containing nitrogen and hydrogen), and water (containing oxygen and hydrogen), in a reducing atmosphere of hydrogen gas, and by highly energizing the mixture in a variety of ways. Electric discharge, various radiations, high temperature, and pressure have all been used as energizing agents in laboratory situations with some success (Lemmon 1970; Lawless and Boynton 1973; Evard and Schrodetzki 1976). The amount of amino acids produced in these experiments has been low, usually less than 1 percent, in comparison to the initial quantity of the carbon compounds present. These procedures all require that somewhat elaborate precautions be taken to remove the amino acids from the reacting system as they are formed so as to prevent their subsequent destruction by the energy source (Miller and Urey 1959).

The highly specialized laboratory conditions necessary for amino-acid synthesis make it difficult to propose a "primitive earth" situation that would provide adequate energy and sufficient preservation of the reaction products. Volcanic heat, lightning discharge, radioactivity and ultraviolet radiation are possible sources of energy; but there is increasing evidence that earth's gaseous envelope has always contained an abundance of oxygen, rather than the hydrogen necessary for a reducing atmosphere in which amino acids can be synthesized (Javor and Snow 1974; Walton 1976). In the presence of oxygen, amino acids and any other biologically relevant molecules would have been quickly destroyed. Furthermore, an atmosphere without oxygen would not have a protective high altitude layer of ozone to stop ultraviolet radiation, which rapidly destroys organic compounds.

There are additional difficulties with the scheme for a synthesis of amino acids that would supposedly lead to living cells. An amino acid may occur in four structural forms. This property is known as stereochemistry. Two of the forms are like a person's two hands, right-hand form and left-hand form, very much alike yet different in the same way the image in a mirror is reversed from the object before the mirror. These two forms are called D and L forms and laboratory syntheses normally yield approximately equal amounts of each. The proteins of living organisms consist almost entirely of the L form of each of the 20 different necessary amino acids. If life randomly evolved and half of the "available" amino acids were D forms, why are D forms not equally represented in living organisms?

In addition to the D and L forms, varieties of amino acids not normally found in proteins are also produced in simulated "primitive earth" experiments, sometimes in great

abundance (Lawless and Boynton 1973). The question can be raised Why are not these varieties also involved in protein formation, at least in some organisms?

Similar difficulties exist with schemes for prebiotic syntheses of monosaccharides, fatty acids, and nitrogenous bases that are the building blocks of polysaccharides, lipids, and nucleic acids. None of these can be synthesized under prebiotic conditions in the presence of oxygen. Moreover, monosaccharides would again be produced as equal mixtures of several structural forms, of which only one is actually found in living organisms.

It has been proved conclusively that an intelligent person using rather complex and sophisticated equipment under so-called "primitive earth" conditions, is able to synthesize a few simple compounds; but it does not follow that the reverse must also be true, that is, that simple chemical compounds have the capacity spontaneously to organize into man, given sufficient time.

A model for the spontaneous evolution of life not only must account for the origin of the basic building units such as amino acids and simple sugars, called biomonomers, it must also account for the combining of these building blocks into more complex and highly characteristic molecules called biopolymers. The process of uniting these is called polymerization. For instance, amino acids or mononucleotides are polymerized to form proteins and nucleic acids, respectively. Some of the problems dealing with the spontaneous occurrence of these reactions are discussed by Calvin (1969, pp. 155-157) and Gish (1972, p. 17). First, one needs to consider the polymerization (combination into more complex forms) of the biomonomers (basic units) into large polymers (complex molecules), which involves a dehydration (removal of water) reaction. Second, the arrangement of the biomonomers has to be highly specific; a proper sequence is critical for their biological activity.

The dehydration reaction requires energy; and several schemes have been suggested to provide this energy. In experiments carried out by Fox and his co-workers (Fox 1965) mixtures of dry amino acids were heated up to 175° C. and proteinlike substances called proteinoids were obtained. Proteinoid formation always required high amino-acid concentrations. It cannot be accomplished in the presence of water, for water is a product of the reaction and must be removed in order to carry the polymerization to completion. In the presence of water the polymers tend to hydrolyze and degrade back to the monomers. It is difficult to imagine how such large amounts of amino acids could be concentrated at certain dry localities (volcanoes, e.g.) on the surface of the primitive earth, postulated to be mostly covered with oceans.

The experiments performed by Miller and Urey (1959), described above, assumed the formation of the amino acids in an aqueous media. Attempts have been made to couple amino acids in an aqueous environment by using dehydrating molecules such as cyanamides (Steinman, *et al.*, 1964). While proteins may contain several hundred amino acids in a chain, this method can join only up to four in any appreciable yields.

More serious is the problem of the linear sequence of amino acids in proteins. Useful proteins are not random polymers of 20 kinds of amino acids. There are many chemical functions that are vital to the life of a cell, and each function requires a specific sequence of amino acids in the protein, which enables that process to be followed in the cell. A given protein may act as an enzyme, or biological catalyst, required for the many chemical reactions carried out by each living cell, each reaction usually requiring a

different and specific enzyme. It can serve as structural material such as collagen, found in tendons and ligaments. Some proteins are involved in transport, such as hemoglobin, which carries oxygen from the lungs to the inner tissues of the body. A protein may be an antibody that provides a specific protective mechanism against infection. Hormones, the chemical messengers involved in regulating an organism, may also be protein in nature. Some proteins act as storage for the essential amino acids. Others, such as actin, have the ability to contract and are needed for muscular action. All of these diverse functions depend on a highly specific number and order for the 20 kinds of amino acids that form protein structure. An analogous situation exists in writing, where 26 letters are used to provide a specific meaning to words, sentences, paragraphs, and books.

One has only to consider the genetic disorder sickle-cell anemia to appreciate the importance of precision in the sequence of amino acids in proteins. This is a disease that affects the oxygen-carrying protein, hemoglobin, of the red blood cells. Hemoglobin consists of four chains of amino acids. Two identical chains are 141 and two other identical chains are 146 amino acids long. Sickle-cell anemia is caused by the replacement of valine for glutamic acid at position six in each of the two longer chains. While it is true that not all substitutions of amino acids in proteins are as drastic as this one, others are more so. The proper order of amino acids in proteins is always extremely critical to its activity and function within the living organism.

The problem of obtaining the proper amino-acid sequence spontaneously from random supplies is discussed by White *et. al.* (1968, p. 141). In a sequence containing only 20 different amino acids in which each kind occurs only once, 2×10^{18} (2 followed by 18 zeros) different sequences can be formed. It has been calculated that for a protein consisting of 288 amino acid units there are 10^{300} (1 followed by 300 zeros) possible combinations if only 12 kinds of amino acids are used. If only one molecule of each of these combinations existed on earth, then the total mass of these sequences would be 10^{280} grams; yet the total mass of the earth, inorganic matter and all, is only 10^{27} grams.

The proteinoids formed under the conditions of Fox's experiments, mentioned above, possess random amino-acid sequences. While it is possible that one of them will have the sequence of a functional protein, the chances of producing by random events on earth even a few of the proteins of a given cell are extremely low. Logic would dictate that one should look for alternatives. Many authors (Eden 1967; Hull 1960; Salisbury 1969, 1971; Schutzenberger 1967) have emphasized the improbability of organizing life by random events.

Another class of large molecular components of living cells is the nucleic acids. Nucleic acids, specifically DNA or deoxyribonucleic acid, contain on a molecular level the information that directs the synthesis of all the proteins vital to the operation of the cell. The sequence of the mononucleotides in DNA is nature's master code, which, when translated by a living cell, controls the sequence of the amino acids found in proteins. Errors in this code or in its translation may lead to the formation of nonfunctional proteins. In addition, DNA provides the template for its own replication—the process by which identical DNA molecules are produced for transmission from cell to cell during cell division. This replication, as well as the translation process, must proceed reliably in order for life to be maintained. The DNA molecule is also coded for the various control mechanisms that regulate the sequence and amount of the various biochemical reactions

that take place within a cell. It should be apparent that the information contained in a DNA molecule is extremely specific and complex (Neufeld 1974a).

The problem of spontaneous synthesis of nucleic acids is even more formidable than that of proteins, since here it is necessary to have specific bond formation between three main components—purine or pyrimidine bases, pentose sugars, and phosphoric acid. These three components properly arranged will form the mononucleotides, which in turn are the building blocks of the nucleic acids. The difficulty of nucleic-acid formation can be illustrated by pointing out that to this date no serious attempts have been made at producing nucleic acids under postulated prebiotic conditions.

The structure of a living cell is also highly organized. Both at the surface and inside are membranes that allow selective passage of certain compounds and the exclusion of others. Some inner membranes function to bind proteins in the specific three-dimensional arrangement required to carry out many of the reaction sequences involved in the maintenance of life. A good example may be found in the mitochondria—small organelles within the cell sometimes referred to as the powerhouse—where highly specific relationships are required between the enzymes that carry out the transfer of electrons from the substrates of oxygen and simultaneously synthesize energy-rich molecules. Such complex specificity poses further constraints on a model that demands that the organizational level be reached by random processes.

In evaluating the possibility of the spontaneous origin of the basic molecules needed for life, one must conclude that a plausible mechanism has not been discovered or postulated. Experiments assuming prebiotic conditions have not yet been able to produce all of the basic building blocks of biological systems. For most of those that have been produced the yields are extremely low, even under optimal conditions. No satisfactory explanation accounts for the unique stereo-chemistry, or structure, of amino acids, sugar, and other molecules found in biological systems. No model has been developed that can satisfactorily account for the highly specific sequences of amino acids in proteins and of nucleotides in nucleic acids or for the origin of the DNA genetic code.

Even if all of the basic building blocks could be synthesized they would not spontaneously be organized into biologically active subcellular structures. As pointed out by Monod (1971, pp. 95-113), life depends on an extremely high level of organization and specificity. Precise control and regulation mechanisms must be built into the cell for the proper functioning of the organism. Chemical systems do not spontaneously order themselves; rather they tend to randomize. Therefore, a reasonable search for an understanding of the origin of life should consider an alternative to the theory of biochemical evolution.

Origin of Living Cells.—The formidable obstacles to the spontaneous origin of life at the chemical and biochemical level, mentioned above, become even more complex when we consider the possible spontaneous origin of a simple but fully functional cell. This would be the simplest form of independent life that all biologists would accept as unquestionably alive. Despite occasional claims to the contrary, no serious attempts to put together a functional cell from its many known constituents have been made by physiologists, biochemists, or molecular biologists. Some of those who have carefully considered the problem recognize that in the light of present knowledge it is difficult, if not impossible, to conceive of success for such efforts (Pollard 1965). One can say that

“the available facts do not provide a basis for postulating that cells arose on this planet” (Green and Goldberger 1967, p. 407).

Origin of Multicellular Organisms.—When we turn to the multicellular organisms, be it plant or animal, we find another universe of complexity and interrelationships between numerous types of highly specialized cells, usually grouped in tissues and organs. Control of development and growth add another level of complexity, as does the regulation of normal function by endocrine, nervous, and other influences. Any candid student of physiology must stand convinced of the multitudinous evidences of design found in every multicellular organism studied to date. Supposed evolutionary relationships based on common physiological features find a much more meaningful explanation in terms of intelligent design rather than chance and competitive advantage. Although reference to the eye is often and appropriately made as an evidence of design, the work of neurophysiologists is revealing that we still only dimly perceive the complexity of the organization of the brain, particularly in human beings, and the intricate design inherent in its numerous functions and control mechanisms (Eccles 1972). When the Christian views the mind and the body that it controls, unfolded in all the intricacy of modern anatomy, physiology, and biochemistry, he must agree with David, who said “I am fearfully and wonderfully made: marvellous are thy works” (Ps. 139:14).

The obvious gap between the living and the nonliving led scientists of the Middle Ages, and even earlier times, to the view that some special quality of “vital force” was present in all living things and accounted for the unique characteristics that set them apart from the nonliving. Conservative Christians today still tend to view the statement of Genesis 2:7 “,And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life,” as implying that human beings and other living things contain some special entity or property that separates them from the nonliving. On the other hand, the advances of modern cellular and organismic physiology are firmly based on the view that the function of living things can be explained in terms of the laws of physics and chemistry, admittedly as a very complex manifestation of these laws in operation.

However, a case can be made for the view that many phenomena of physiology and development cannot be adequately explained on a physiochemical basis. The functioning of the brain and the nature of the mind are examples most often cited (Stent 1968; Polanyi 1968). Lack of success in explaining these phenomena probably indicates the inadequacy of physiochemical science at its present level of development, rather than the existence of an active immaterial component that is independent of molecular structure. The complexity of living organisms is such that a fully adequate explanation of all these functions, particularly at the conscious level, may be beyond the capabilities of created intelligence.

In the view that the laws manifested in natural processes are not manifestations of innate properties of matter, but are the continuing expression of God’s will and creative power, living things at all levels are seen as a manifestation of God’s capability (White 1904, 1905). Rather than grappling with insoluble problems in attempts to explain the origins of living cells and organisms, the individual who accepts the revelations in Scripture finds that the discoveries of science unfold the operation of laws laid down by God at creation and open exciting insights into God’s nature and thought.

III. Evidence From the Fossils

The Nature of Life Represented by the Lowest Fossils.—The lowest sedimentary rocks that contain abundant evidence of complex many-celled organisms are denoted by the term Cambrian. Cambrian rocks are considered by uniformitarian geologists to have been formed during a 100 million-year period beginning approximately 600 million years ago. Six hundred million years is only about one fifth of the total time said to have been involved in the progressive evolution of life from the simplest substance having the characteristics of life to the complex and multitudinous forms of modern organisms.

Cambrian fossils were marine organisms that were not primitive, simple, or poorly developed. That they were complex and well developed, with detail equal to their modern counterparts, is an extremely important point for consideration. They were definitely worms, crustaceans, or brachiopods, fully as complex as the worms, crustaceans, or brachiopods of today's oceans.

Usually only the hard parts of animals preserve as fossils. But even with only the hard parts available for examination it is possible to determine much about an organism. Trilobite fossils are characteristic of the Cambrian. Trilobites were ocean-bottom creatures that resembled sow bugs or pill bugs and were related to crayfish, crabs, and other Crustacea. They had a chitinous exoskeleton that required periodic molting for growth. Molting is a complex and involved process. The body was segmented and had numerous jointed legs and appendages that would have been useless without a complex motivating musculature. Compound eyes and antennae were the outward expression of a complex nervous system. Respiratory bristles indicate that trilobites had a blood-circulatory system for transporting oxygen. Complex mouth parts gathered and prepared specialized food. Considering all factors, this creature cannot be classified as more primitive than its modern counterparts.

Annelid worm fossils are found in the Cambrian rocks. The segmentation of these worms involves the repetition of certain organs in each segment. The worms had a complete digestive system. Bristles, spines, and muscles provided locomotion. The animal was also equipped with a blood-circulatory system. Eyes and other complex sense organs along with the features mentioned above, all add up to a total picture of great complexity similar to modern worms. Thus it can be said that the animals found in the Cambrian (two of which have been described above) are as complex as relatives living today.

Since all the major phyla of the animal kingdom, excepting possibly the chordates, are found in Cambrian strata, and no transitional forms are found in lower strata, the evidence here favors the sudden appearance of marine life in accord with the second postulate of Biblical creation theory, as stated on page 47.

Although the Precambrian levels are usually granitic or crystalline rock that naturally would not be expected to contain fossils, there are sediments below the Cambrian that are suitable for preservation of fossils—extensive limestone beds, for example. These sediments are almost always barren of fossils.

In recent times a large amount of effort has been exerted in search of evidence of life in rocks below the Cambrian. Evidences of fungi and algae have been reported. Laminated but otherwise structureless calcareous objects that have been interpreted as fossil calcareous algae and called stromatolites have been described as “widely distributed” in some Precambrian limestone formations (Dunbar and Waage 1969).

Paleontologists have also reported brachiopods, annelid worms, coelenterates, and other many-celled marine animals in Precambrian material from various locations throughout the world. Some of these reports may be valid. Others may be the result of an uncertain distinction between Cambrian and Precambrian rock. Whatever the case may be, the problem of ancestors still remains. The rare finds of fossils from the Precambrian exhibit complexity and organizations comparable to modern counterparts.

The totality of fossil evidence from both the Precambrian and the Cambrian supports the second postulate of creation, which assumes that within a short period of time living organisms were brought into existence fully developed. This situation is not beyond the recognition of paleontologists who do not accept Biblical creationism, some of whom have made considerable effort to explain the lack of evidence for evolutionary development of the organisms that produced the Cambrian fossils. Even Charles Darwin realized that this was a crucial problem. In his *Origin of Species*, after giving the matter some discussion, he wrote:

“To the question of why we do not find rich fossiliferous deposits belonging to these assumed earliest periods prior to the Cambrian system, I can give no satisfactory answer. . . . The case at present must remain inexplicable, and may be truly urged as a valid argument against the views here entertained”

(Darwin 1859, pp. 309, 310).

In Darwin’s day the study of paleontology was only in its initial developments, and it could be argued with considerable validity that the apparent absence of life in the Precambrian and the sudden appearance of many complex kinds in the Cambrian were merely owing to insufficient collecting, and that this situation would undoubtedly change as more people did more searching. One hundred years later Norman D. Newell, of Columbia University, made the following observations in a paper prepared for the Darwin centennial celebrations:

“A century of intensive search of fossils in the pre-Cambrian rocks has thrown very little light on this problem. Early theories that those rocks were dominantly nonmarine or that once-contained fossils have been destroyed by heat and pressure have been abandoned because the pre-Cambrian rocks of many districts physically are very similar to younger rocks in all respects except that they rarely contain any records whatsoever of past life”

(Newell 1959).

The Character of the Fossil Sequence.—Not only do fossils of most complex living forms appear in the Cambrian rocks without precedent, but the major taxonomic categories, or kinds, maintain their differences throughout the geological column. The distinguished paleontologist George Gaylord Simpson has described the situation in these words:

“It is a feature of the known fossil record that most taxa appear abruptly. They are not, as a rule, led up to by a sequence such as Darwin believed should be usual in evolution. . . . When a new genus appears in the record it is usually well separated morphologically from the most nearly similar other known genera. This phenomenon becomes more universal and more intense as the hierarchy of categories is ascended. Gaps among known species are sporadic and often small. Gaps among known orders, classes, and phyla are systematic and almost always large.”

(Simpson 1960, p. 149).

Since Darwinism first gained acceptance in the scientific community, efforts have been made to find “missing links” that would fill these gaps. Intensive search for more than 100 years has discovered only a few debatable fossils that some paleontologists place between the basic kinds of animals. Norman Newell, who was quoted a few paragraphs earlier, summarized the situation regarding missing links in a statement that has become increasingly appropriate with continued research effort:

“These isolated discoveries, of course, stimulate hope that more complete records will be found and other gaps closed. These finds are, however, rare; and experience shows that the gaps which separate the highest categories may never be bridged in the fossil record. Many of the discontinuities tend to be more emphasized with increased collecting”
(Newell 1959, p. 267).

The unprecedented appearance of most complex forms of life in the Cambrian and persistent discontinuities between higher categories in the overlying fossils are extremely important supporting evidence for the creation model of origins. The hypothesis of progressive evolution finds meager support in the fossil record.

Efforts have been made to account for the absence of more primitive ancestral forms in the fossil record by postulating an explosive type of evolution that quickly populated the earth with detailed forms of a given type, which then experienced little change over long periods of time. This is one step short of creationism, particularly the viewpoint known as progressive creationism (Ramm 1954, p. 76 ff.). No reasonable explanation has been offered for an evolutionary process that proceeds with great rapidity for a relatively brief interval and then is inactive over vast epochs of time. Some fossils should have been formed during transition periods of high evolutionary activity. The absence of such transition fossils led one of the early advocates of explosive evolution to say:

“When we examine a series of fossils of any age we may pick out one and say with confidence ‘This is a crustacean’—or a starfish, or a brachiopod, or an annelid, or any other type of creature as the case may be. . . . Since all the fossils are determinable as members of their respective groups by the application of definitions of those groups drawn up from and based entirely on living types, and since none of these definitions of the phyla or major groups of animals need be in any way altered or expanded to include the fossils, it naturally follows that throughout the fossil record these major groups have remained essentially unchanged”

(Clark 1930, pp. 100, 101). A search of the paleontological literature of the past 50 years reveals no new data that would require a revision of this statement.

Concerning the fossil record of plants, A. Lea McAlester, of Yale University, writing as editor of the ten-volume *Foundations of Earth Science Series*, says:

“One of the most perplexing problems in the entire evolutionary record of plants concerns the origin of the angiosperms [flowering plants]. . . . Moreover, many of the major angiosperm subgroups are already differentiated when they first appear in the fossil record. This fact suggests that the group had a considerable pre-Cretaceous history that, for some reason, is not recorded in the fossil record. . . . In any case, there are no transitional fossils to indicate the ancestry of the group”

(McAlester 1968, p. 100).

A few years earlier E. J. H. Corner, a botanist at Cambridge University, stated:

“Much evidence can be adduced in favor of the theory of evolution—from biology, biogeography, and paleontology, but I still think that, to the unprejudiced, the fossil record of plants is in favor of special creation. . . . Can you imagine how an orchid, a duckweed and a palm have come from the same ancestry, and have we any evidence for this assumption? The evolutionists must be prepared with an answer, but I think that most would break down before an inquisition”

(Corner 1961, p. 97).

The differences in size, type of teeth, shape of head, number of toes, et cetera, among horse fossils are frequently arranged in books and museum exhibits as evidence supporting the theory of evolution. The horse series is impressive, but there are a number of considerations that make it less conclusive than one is usually led to believe.

The first member of the series, *Hyracotherium* (*Eohippus*), is so different from the modern horse and so different from the next member of the sequence that its inclusion in the series is highly questionable. It should probably not be considered a horse at all, for the following reasons: A slender face with eyes midway along the side, the presence of

canine teeth, lack of a diastema (space between front teeth and back teeth), arched back, and long tail.

Of *Hyracotherium* Simpson (1945, p. 254) says:

“Matthew has shown and insisted that *Hyracotherium* (including *Eohippus*) is so primitive that it is not much more definitely equid than tapirid, rhinocerotid, etc., but it is customary to place it at the root of the equid group.”

Simpson further says:

“Horse phylogeny is thus far from being the simple monophyletic, so-called orthogenetic sequence that it appears to be in most texts and popularizations.”

Another interesting statement along this line is by Garrett Hardin (1961, pp. 225, 226).

“There was a time when the existing fossils of the horses seemed to indicate a straight-line evolution from small to large, from dog-like to horse-like, from animals with simple grinding teeth to animals with the complicated cusps of the modern horse. It looked straight line—like the links of a chain. But not for long. As more fossils were uncovered, the chain splayed out into the usual phylogenetic net and it was all too apparent that evolution had not been in a straight line at all, but that (to consider size only) horses have now grown taller, now shorter, with the passage of time. Unfortunately, before the picture was completely clear, an exhibit of horses as an example of orthogenesis had been set up at the American Museum of Natural History, photographed, and much reproduced in elementary textbooks (where it is still being reprinted today).”

Simpson’s statement was written in 1945, Hardin’s in 1961. Unfortunately, corrections of misleading information often lag years behind the discovery of the errors.

The genus designation *Hyracotherium* has priority over *Eohippus*. The term means a hyraxlike animal and was selected because the fossil remains best fitted the hyrax type. The hyrax is now living in the Near East and Africa, and is mentioned in the Bible where the King James Version reads “coney.”

All factors taken together, the fossil record indicates that there has been variation and speciation within the horse kind, but gives no firm evidence for its evolution from a different kind of animal or into a different kind of animal.

It should be pointed out that the writings of each of the authorities quoted in this section provide numerous statements that express firm belief in an evolutionary history of organisms. The point that the authors of this article wish to make is that the *facts* of paleontology fit naturally into a Biblical creation model, and do not favor the popular evolution model.

Fossil Man.—In recent years the study of the fossil record for human beings has achieved a new level of maturity, and a great deal of careful and scientifically sound work has been accomplished. Particularly exciting has been the avalanche of new evidence that has come from East Africa. Although the fossil record is still painfully inadequate, the number of ancient-man fossils must now be numbered in the thousands. It should be emphasized that the vast majority of these fossils are only isolated teeth or jaw fragments and that complete, articulated skeletons of the most ancient types are unknown; nevertheless, the hominid (man and manlike primates) fossil record is probably better known than the fossil record of any other primate family.

In view of the substantial, though fragmentary, body of fossil evidence now available to the student of human origins the pertinent question is Do the fossils document the gradual development of man from an apelike ancestor or do they provide another illustration of George Gaylord Simpson’s observation: “It is a feature of the known fossil record that most taxa appear abruptly. ... When a new genus appears in the record it is

usually well separated morphologically from the most nearly similar other known genera” (Simpson 1960, p. 149).

The search for modern man’s ancestors has been intensive since the initial acceptance of Darwinism by the scientific community. Three major groups of hominids have traditionally been interpreted as containing species either ancestral to modern man or representative of earlier types of man or near-man that became extinct. (A fourth group, the so-called ramapithecines, has been interpreted by some scholars as containing the earliest hominids in the fossil record, but *Ramapithecus* fossils are so fragmentary that their hominid status remains speculative.) It must be recognized that much variation exists within each of the broad groups and that many fossils do not fall readily into any of these categories.

1. *Neanderthal man*. A rather large number of fossils from Europe, Africa, and even Asia are referred to collectively, but rather loosely, as representatives of the Neanderthal man type. The Western European specimens are distinctive and seem to represent a somewhat specialized type of man that lived in Western Europe during the ice age.

Following the lead of the French scholar Marcellin Boulé (1911-1913), it was long felt that Neanderthal man possessed numerous apelike features. More recent reinterpretations, such as the study by Strauss and Cave (1957), have demonstrated that the supposed apelike characteristics were grossly exaggerated. Although distinct from modern man in certain prominent features of the skull, as well as in some more subtle aspects of the postcranial skeleton, there is no convincing reason to believe that Neanderthal man was in any sense subhuman. The archeological record associated with Neanderthal man demonstrates that he possessed typically human aesthetic and religious concerns, and fully human intellectual and cultural capacities.

2. *Homo erectus*. This group of ancient-man fossils includes the famous Java man found by Eugene Dubois in 1892 and the equally renowned Peking man recovered from Choukoutien cave near Peking, China, in 1927. The secretive manner in which Dubois dealt with his original find only fueled the controversy that surrounded his Java man fossils for many years. Dubois himself vacillated in his interpretation, arguing at first that Java man was a “missing link” but later concluding that he was really a huge extinct gibbon. The uncertainty surrounding the interpretation of Java man and Peking man was heightened by the loss of the Peking man fossils during World War II. Detailed descriptions, photographs, and plaster casts of some of these materials exist but cannot fully compensate for the loss of the originals. Fortunately, new finds, some since World War II, have substantiated the significance of both Java man and Peking man. The discovery of similar fossils from both Java and China, as well as Africa and Europe, lends plausibility to the interpretation of *Homo erectus* as a distinctive type of ancient man with a widespread distribution in the old world.

What little is known of the postcranial skeleton of *Homo erectus* suggests that the differences compared to modern man are very slight. It is in the skull that *Homo erectus* differs most from modern man. The relatively small brain size has been urged as evidence that *Homo erectus* represents a stage of human evolution during which the brain had not yet achieved its full modern proportions, but interpretations of intelligence based upon absolute brain size are risky, since qualitative factors may be as important as sheer size in determining intelligence.

Although some creationists prefer to view the *Homo erectus* fossils as nonhuman ape fossils (e.g. Gish 1972, p. 102), the general and specific similarities of *Homo erectus* to modern man make it difficult to see *Homo erectus* as anything other than a form of true man. It is significant that in recent years anthropologists have changed the name of these fossils from *Pithecanthropus*, a Latin term meaning “ape-man,” to *Homo erectus*, the Latin words for “erect man.” Specialists in the study of ancient man are unanimous today in their belief that *Homo erectus* was a true man, a belief that comports well with creationist models of human origins. It should be noted that some creationists, while conceding the full humanity of *Homo erectus*, feel that ultimately evidence will be found that demonstrates that *Homo erectus* fossils represent pathological individuals that lived contemporaneously with fully modern forms of man.

3. *Australopithecus*. In 1924 Raymond Dart found a fossil skull in South Africa that he called *Australopithecus* (“southern ape”). This skull, although rather apelike in its general appearance, possessed some striking similarities to man in its dentition. Many more fossils of this type subsequently were found in South Africa. More recently the late Louis Leakey and his son Richard have been instrumental in discovering large numbers of fossil bones of the australopithecine type from Olduvai Gorge in Tanzania and in the Lake Turkana area of Kenya.

It is important to bear in mind that the australopithecine fossils are complex as a group. Scientists studying the South African fossils concluded that two types were present, a smaller, more gracile type originally named *Australopithecus africanus*, and a larger, more rugged type named *Australopithecus robustus*. J. T. Robinson has concluded that these two types were sufficiently different, not only in morphology but also in dietary adaptation, to warrant placement in separate genera (Robinson 1972, p. 3). Louis Leakey felt that a third type more similar to man than either of the South African types was present in Olduvai Gorge. This type he named *Homo habilis*, although other students of human evolution have concluded that *Homo habilis* was only a slightly more humanlike form of *Australopithecus africanus*. It is now generally conceded that Louis Leakey’s famous *Zinjanthropus boisei*, also from Olduvai Gorge, is closely related to *Australopithecus robustus*.

Controversy concerning the relationship of the various types of australopithecines to one another and to true man remains vigorous; nevertheless, until upset by discoveries in 1972, a general consensus was achieved in the scientific community in support of the viewpoint that at least one of the australopithecines was man’s direct evolutionary ancestor. Typical is the following quotation from a 1973 textbook in physical anthropology: “Discovery of early specimens of *Australopithecus* are important because, whether or not there were eventually two or more species (some of them outside the human line of descent), at least the early members of the genus must have been directly ancestral to man” (Lasker 1973, p. 258). This consensus rested largely on the evidence suggesting that the australopithecines were upright walkers like man and upon some striking similarities in the teeth.

Some creationists have viewed the australopithecines as degenerate forms of post-Flood man, but most creationists have resisted the hominid interpretation of australopithecine affinities, emphasizing instead their affinities with the apes. Creationists taking this position have derived some comfort from the fact that a few prominent evolutionist scientists have also consistently resisted the consensus opinion. Most notable

in this regard is the English anatomist Lord Solly Zuckerman. Zuckerman disputed the upright interpretation of australopithecine locomotion and vehemently insisted that the australopithecines were simply apes, not hominids: “When compared with human and simian skulls, the australopithecine skull is in appearance overwhelmingly simian—not human. The contrary proposition could be credited to an assertion that black is white” (Zuckerman 1966, p. 93).

The fossils found by Richard Leakey in East Africa possibly lend partial support to Zuckerman. At least there is a growing feeling among students of ancient man that the larger, more robust type of australopithecine may not have possessed the human type of bipedality (Leakey 1973, p. 1972). It is now widely felt by evolutionists that the robust type of australopithecine was never in the line of human descent.

A key discovery by Richard Leakey in 1972 casts doubt on the view that *any* of the australopithecines were man’s direct ancestors. The surprisingly modern “Skull 1470” found by Leakey near Lake Turkana in rock strata also containing *Australopithecus* fossils may lead to the conclusion that *none* of the presently known australopithecines were ancestral to modern man. Skull 1470 is not a fully modern *Homo sapiens*, but it appears to be the skull of a true man. The reported cranial capacity of 775 cc. is small compared to the mean value of nearly 1400 cc. for modern man, but large compared to the reported values for the australopithecines and overlaps the range of values cited for *Homo erectus*.

If Skull 1470 does represent the remains of true man, the australopithecine fossils found in the same rock layers and in higher stratigraphic levels cannot be the direct ancestors of true man, and the search for missing links preserving apelike and manlike characteristics has to be pushed into even lower geological levels. The creationist model predicts that the sought-for intermediate forms will never be found, even in the lower strata.

The fossil record for ancient man provides, therefore, another illustration of the general problem of missing links in the fossil record, and does not document gradual development of man from an apelike ancestor. The morphological gap between true man and the apes remains substantial. Behavior patterns form an even larger gulf between man and other members of the animal kingdom. In one sense, man’s body is but a variation on a common mammalian pattern, whereas behaviorally man’s cultural adaptation is unique. Human culture is made possible by at least two related and uniquely human capacities: man’s distinctive mode of speech and his ability to create and manipulate symbols. Although recent experiments have shown that chimpanzees have a surprising ability to conceptualize when taught nonverbal modes of communication such as sign language, there is no evidence that the chimpanzee or any other animal possesses man’s innate linguistic ability. It is probably more difficult to understand the emergence of man’s unique cultural and intellectual behavior by means of natural selection than it is to account for the development of man’s distinctive physical features, although both pose severe challenges to the ingenuity of evolutionary theorists. The behavioral and morphological gap between man and the rest of the animal kingdom is best explained in terms of fiat creation.

IV. Biological Considerations

Comparative Anatomy and Physiology.—The flipper of a whale, the foreleg of a frog, the wing of a bird, the foreleg of a dog, and the arm and hand of man, to cite a few

examples, appear to be modifications of a common basic structure. The necks of such widely diverse animals as mice, elephants, porpoises, and giraffes have seven cervical, or neck, vertebrae. These features have been taken as evidence for common ancestry in a chain of evolution. They can with equal justification be regarded as conservation or optimization of design by a Creator. One never hears of the back or tail vertebrae used as evidence for common ancestry, since these vary among different mammals. The Biblical creation model is in harmony with all of the data concerning both similarities and variations in design among different vertebrates.

Similar illustrations abound in physiological features such as enzymes, hormones, and hemoglobin.

Variability in Organisms.—Since the beginning of the 20th century the science of genetics, the study of inheritance, has expanded from a little-known aspect of biology to perhaps the most significant and quantitative of the life sciences. This study has revealed principles and laws that make possible an understanding of the physical basis for variation within organisms. Geneticists consider the driving force of evolution to be natural selection, operating on the consequences of mutations (appearance of modified or previously nonexistent heredity-determining elements) and recombinations (reorganization of previously established heredity-determining elements).

Mutation introduces a modified gene (heredity determiner) into the hereditary complement of an individual, and subsequently through reproduction into the population. Gene modification is produced by the addition, deletion, or substitution of one or more nucleotide base(s) in the DNA molecule.

The great majority of mutations are harmful, a fact that indicates optimum initial design by the Creator. The mutation that produced short-legged sheep (Ancon sheep) is helpful in keeping sheep from straying or jumping over fences, but this obviously is not a beneficial mutation to the sheep. Somatic mutations that produce seedless grapes or navel oranges are beneficial to man, but would not aid naturally in the perpetuation of grapes or oranges.

Many mutations of the fruit fly *Drosophila* have been produced and studied in genetics laboratories. Among these is a condition in which the fly has white eyes (red is normal). If this condition were advantageous to the fly as compared to the normal eye color, eventually the entire population might become white-eyed. Actually the situation turns out to be the reverse. Female *Drosophila* will not mate with white-eyed males as long as normal-eyed males are available, and no white-eyed population has yet been discovered in the wild.

Before 1845 only gray specimens of the peppered moth (*Biston betularia*) were known in England, but in that year a black one was collected at Manchester. From that time onward black specimens became more and more common until the population in the polluted industrial areas of England was essentially black. The reason for this became apparent when it was noticed that the black moths are hardly noticeable on the soot- and coal-dust covered trees; whereas the grey moths stand out plainly. These moths normally alight on the bark of trees that are black and devoid of lichens in the soot-covered industrialized areas, but in the rural, uncontaminated country they light on lighter colored bark that is plastered with white crustose lichens. Visual observation and photographic records have been obtained of the birds feeding on the conspicuous moths but missing the others. With the enforcement of pollution-control measures, gray specimens are

becoming reestablished. More examples of this kind of mutation, known as industrial melanism, have been found in other parts of Europe, and it is exhibited by nearly 100 species of moths in the Pittsburgh region of the United States (Bishop and Cook, 1975).

Mutations involving changes in pigmentation are common, especially in organisms that have rapid reproduction. Albinism, a complete or partial absence of pigment, is quite frequently reported for many kinds of animals and plants. It is likely that the dark phase of the moths involved in industrial melanism arose by mutation in recent times. Environmental pressure (natural selection) then caused the population living in polluted industrial areas to shift to the dark pigmentation phase.

Hybridization results from the mating of two individuals with different genetic makeup. Obviously the greater the differences between the parents, the greater the potential for different combinations of genes. It is well known that there are limits to hybridization. Individuals and organisms of too diverse characteristics are unable to cross. The offspring resulting from hybridization may appear different from either parent, but obviously their genetic makeup is controlled by that of the parents.

Natural selection (survival of the fittest) played an important role in the original Darwinian theory. It is a truism that certain kinds of organisms can survive in some environments where others cannot. A new gene is not likely to become established in a population if environmental factors are not favorable for the individuals with the new gene. Mutations are known to span the spectrum from harmful to helpful, but since most are harmful, environmentalists and individuals who are responsible for public health are concerned for the elimination of all factors, such as exposure to penetrating radiation, that produce mutation.

The pressure of circumstances favors the most fit members of a population. But since there is no uniform relationship between complexity and fitness to survive environmental stress, natural selection is not an adequate means for effecting a process of a major progressive evolution. In the creation model, mutations may be of two types: (1) an endowment by which organisms are assisted in meeting a change in environmental requirements, and (2) a degenerative consequence of sin.

While many variations in organisms are only slightly beneficial or slightly degenerative, there are numerous examples of profoundly degenerate forms. These may have developed through two possible routes: (1) A previously beneficial or cooperative existence that became changed to one of harm and destruction; (2) a free-living organism that became adapted to life on, or within, another organism to the detriment of the latter. It is not overly difficult to visualize the possibility of the change of a beneficial symbiont into a parasite. Mention could be made of beneficial protozoans and bacteria. On the other hand, some species of protozoans and bacteria are disease-producing. Some of those that now are harmful may originally have been beneficial. There is evidence that free-living organisms have changed to a parasitic existence and in the process undergone great degenerative changes in structure and physiology. Several genera of animals have species that reveal progressive parasitism from those that are completely free-living to others that depend entirely on host organisms.

New species of plants and animals are being formed at the present time. The almost intergradations within the various kinds of animals and the various kinds of plants in the world, the profound degeneration among some parasites, and the evident adaptations for offense and defense among certain animals lead to the inevitable conclusion that much

change has occurred among the living forms on earth. But there is no evidence of major change from one fundamental kind to another. Note how Geneticist David Merrell, of the University of Minnesota (1962, pp. 294-296), has expressed this:

“The origin of the higher taxonomic categories has presented a problem because new orders and classes generally appear suddenly in the fossil record, without evidence of intermediate fossil types. ... Their absence has led some students of evolution to postulate that a different mechanism is responsible for the origin of higher groups, and that mutation, selection, gene flow, and genetic drift are responsible only for microevolutionary changes. Macroevolution has, for instance, been attributed to extremely rare macromutations or systemic mutations, which have such drastic effects that they give rise to ‘hopeful monsters.’ ... However, such an origin for higher taxonomic groups seems very improbable. Aside from the fact that no systemic mutations have ever been demonstrated, among the arguments against this explanation two seem particularly telling. It is extremely unlikely that a single chance mutation would cause all of the many changes in the physiology and morphology of the organism that would be necessary to produce a type sufficiently well adapted to a new mode of existence to be considered a new order. ... Furthermore, if systemic mutations are so precious and so rare, and give rise to new orders in one bound, then in sexually reproducing species this lone individual of the new order becomes a voice in the wilderness seeking its mate, which does not exist, and hence the order that originated at one step becomes extinct in one step.”

It is certainly significant that, after more than 100 years of search, among the unnumbered fossils that have been collected there are very few (statistically one should say an insignificant number) that can be used in an attempt to demonstrate evolution from one major category to another. The most widely publicized fossils that have been claimed to be transitional are those of *Archaeopteryx*, a creature that combined some characteristics of both birds (feathers) and reptiles (teeth and tail). No more than six fossil specimens of this creature have been found, all near Solnhofen, Germany. All known *Archaeopteryx* specimens were fully equipped for flying. No intermediates with partly developed wings have been found.

Additional support for Biblical creationism is provided by “living fossils.” Among the most spectacular of these are the ginkgo tree, the coelacanth fish, and a segmented mollusk *Neopilina*. Until living specimens were found these organisms were considered to have been extinct for 11 million, 70 million, and 280 million years, respectively. It is unlikely that a marine organism would survive 280 million years without leaving some trace in the shifting patterns of continental and ocean sediments that have been postulated over so much presumed geological time.

Salt deposits that have an age classification of Late Precambrian on the evolutionary time scale (more than 600 million years) have been found to contain viable bacteria. When cultured these fossil bacteria are morphologically similar to extant strains and are readily classifiable by modern criteria. The principal difference between them and the corresponding modern types is that the fossil bacteria seem to have greater biochemical virility (Dombrowski 1963). These observations are more in accord with the Biblical creation model than with the evolutionary model.

Reasons for Popularity of the Organic Evolution Hypothesis.—Many readers will wonder why the Biblical creation theory has so few adherents in face of the evidence. One reason is that few individuals, even among scientists, have examined in perspective the totality of the evidence that has been sketched in this chapter. During the latter 19th and early 20th century, when evolutionary concepts of origin were gaining widespread acceptance, virtually nothing was known regarding the structure of biochemicals and the probabilities for their synthesis other than by living organisms, the submicroscopic (smaller than can be seen with visible wave lengths) structure of a cell and the complex

processes involved in the operation of a living cell, the existence and functions of the DNA molecule, the complexities and functions of enzyme and hormone chemistry, or genetic mechanisms. There was reason to expect, at least until the second quarter of the 20th century, that paleontological investigation eventually would produce adequate historical evidence for a continuous development of organisms from the simplest living substance to the most complex (man).

It is apparent now that Charles Darwin and those who supported his views made an unwarranted extrapolation from the variation within various kinds of organisms that is evident among living specimens and also demonstrated in the fossil record, to megaevolution that would account for all present biota in terms of an accumulation of variations that began with the organization of the simplest living substance.

It is not so well recognized that an important factor in the rapid shift away from Biblical creationism was the unsound viewpoints that were held on a supposed basis of Biblical authority. Darwin (who was trained for the Christian ministry) might never have advocated the extreme views for which he became famous if rigid fixity of species had not been taught by church leaders. Certainly a large number of individuals were inclined to discredit their childhood faith and accept the increasingly popular evolutionary viewpoints when they became aware that the facts concerning living creatures and fossils do not agree with the concept that every living organism has descended without variation from ancestors created by God. The complex human factors involved in the rapid acceptance of Darwinism have been treated by Gertrude Himmelfarb (1967).

Once a theory or viewpoint is widely accepted it subconsciously, as well as consciously, determines the outlook of the individuals and the group with whom it is associated—it becomes a part of the folk consciousness. The history of human thought has shown that theories often do not rise and fall so much on the basis of the strengths and weaknesses of the evidence as on the intellectual climate within the community. Furthermore, a theory can maintain itself despite the accumulation of contrary data if there is a strong will to maintain it for reasons other than the supporting evidence. The popular theory of evolution has a strong appeal to an individual who has a secular orientation.

V. Radiometric Age of Fossils

The discussion up to this point has been limited to processes of origin. A creationist model of origins must also deal with the time frame into which these processes are fitted. Of particular interest is radiocarbon dating. Under the simplifying assumption that living organisms have always contained the same proportion of radioactive carbon that has characterized them in recent times, the residual amount of radioactive carbon in the remains of an organism can indicate the time that has passed since its death (the time that has passed since the organism ceased to maintain its carbon in equilibrium with the carbon in its food supply). The sensitivity with which radioactive carbon can be detected limits the radiocarbon-dating-time range to about 50,000 years.

Since there are vast quantities of fossil organic material that has a radiocarbon age in excess of 50,000 years (coal, oil, and natural gas, for example) the second postulate of the Biblical creation model presented in this chapter requires the assumption that changes associated with the Flood have resulted in an increase of the radioactive carbon concentration in the biosphere from a negligible level to the level that has been approximately maintained over the last 3,500 years. Each increase in the biosphere

concentration of radioactive carbon by a factor of two reduces the apparent radiocarbon age of associated material by 5,730 years. Reasonable changes that have been suggested for producing the necessary increase are: (1) a decrease in earth's magnetic field from a pre-Flood level that prevented cosmic radiation from interacting with the outer atmosphere to the extent it does at present (complete removal of the geomagnetic field would approximately double the present rate at which radioactive carbon is formed); (2) a decrease of the moisture concentration in the outer atmosphere region, with the result that cosmic rays reaching the atmosphere are more effective in producing radioactive carbon than was the case before the Flood (less deuterium produced from the hydrogen in water, hence more radioactive carbon produced from nitrogen); (3) a decrease in the amount of carbon in the carbon-exchange system owing to burial of organic material and formation of carbonate rock (the smaller the amount of normal carbon in the carbon exchange system, the greater will be the ratio of a year's production of radioactive carbon to the normal carbon with which it is mixed).

One school of thought holds that, though all three of these factors may have combined, most of the change indicated by Biblical chronology was the consequence of carbon removal from the active biosphere (Brown 1977). To conform with a short-chronology interpretation of the Bible, this theory postulates that the changes that resulted in a post-Flood increase in the radioactive carbon concentration took place in a manner that brought this concentration up to approximately the contemporary level by the middle of the second millennium B.C. A model that includes this suggestion places radiocarbon dates between 3,500 and infinity (c. 50,000) within the period between the middle of the second millennium B.C. and the Flood (Brown 1969a). While this model is based primarily on Scriptural evidence, it is also firmly based on the principles of physical science and involves reasonable speculation concerning consequences of the Flood. Scientific evidence that tends to support it has recently become available (Brown 1975, 1977).

Other methods, such as amino acid residue techniques for directly determining the age of ancient organic remains, are usually calibrated against radiocarbon dating (Gish 1975).

Inorganic radiometric dating techniques (particularly uranium-lead, potassium-argon, rubidium-strontium, and fission-track) have been used to establish an age for fossils by assuming that a fossil is at least as old as the radiometric age for the mineral in which the fossil is buried, or the mineral that either intrudes or overlies the layer in which the fossil is found. This assumption is not justified unless the radiometric "clocks" were "set to zero time" when the mineral was brought into association with the fossil. It is becoming increasingly apparent that when minerals are transported in plutonic, volcanic, solution, or erosion events they may carry radiometric evidence that relates to their origin and previous history, but does not necessarily date the transport event (Bailey, *et al.*, 1962; Brooks, *et al.*, 1976; Dickinson and Gibson 1972; Hower, *et al.*, 1963; Perry 1974; Shaffer and Faure 1976; Smith and Bailey 1966). Thus a "young" fossil may be buried in or underlie radiometrically "old" mineral. The various radiometric age determinations that can be made for this mineral may tell something about the characteristics of its components at their original creation and something about the exposure to heat, water, and radiation during its history, without providing any data concerning the length of time it has been associated with fossil material (Brown 1969b).

VI. A Balanced View of Science and Scripture

Close beside the danger of ignoring or distorting the plain teaching of inspired testimony in order to be in harmony with a prevailing viewpoint is the danger of reading into this testimony more than the Holy Spirit intended it to say. The latter is well illustrated by the immeasurable loss to the cause of Christ that has resulted from misrepresentation of the Bible in support of opposition to heliocentric cosmology (Santillana 1955). Church leaders who propounded a doctrine of creation that allowed for no variation within organisms must share with those who have reduced the first 11 chapters of Genesis to myth and metaphor in responsibility for the harm that has come to individuals and societies as a result of evolutionary theory.

The safe course to follow is in recognition that God speaks truth consistently, whether in the canon of Sacred Scripture or in the evidences of the natural world, that these two sources of information clarify each other, that “a correct understanding of both will always prove them to be in harmony” (White 1904), and that when, because of limited understanding, harmony between them appears unattainable the best thing to do is to interpret Scripture on the basis of its own testimony.

REFERENCES

- Arnold, Chester A. 1947. An introduction to paleobotany. McGraw-Hill, New York.
- Axelrod, Daniel I. 1958. Early Cambrian marine fauna. *Science* 128 (3314): 7-9.
- Bailey, S. W., Hurley, P. M., Fairbairn, H. W., and Pinson, W. H. J., Jr. 1962. K-Ar dating of sedimentary illite polytypes. *Geological Society of America Bulletin* 75:1167-1170.
- Bishop, J. A., and Cook, Lawrence M. 1975. Moths, melanism and clean air. *Scientific American* 232(1):90-99.
- Boule, M. 1911-1913. Fossil men. Oliver and Boyd, Edinburgh. English translation, 1923.
- Brooks, C., James, D. E., and Hart, S. R. 1976. Ancient lithosphere: its role in young continental volcanism. *Science* 193:1086-1094.
- Brown, R. H. 1958. The creation of elementary matter. The Ministry, February.
- _____. 1969a. Chapter 26, *In Creation—accident or design?* By H. G. Coffin. Review and Herald Pub. Assn., Washington, D.C.
- _____. 1969b. Chapter 25, *op. cit.*
- _____. 1971. Radioactive dating of inorganic material. *The Review and Herald*, November 4.
- _____. 1975. C-14 age profiles for ancient sediments and peat bogs. *Origins* 2(1):6-18.
- _____. 1977. The interpretation of C-14 dates. Geoscience Research Institute, Berrien Springs, Mich.
- Calvin, M. 1969. Chemical evolution. Oxford University Press, New York.
- Clark, A. H. 1930. The new evolution: zoogenesis. The Williams and Wilkins Co., Baltimore.
- Clark, H. W. 1946. In defense of the ultra-literal view of the creation of the earth. *The Forum* 1:11-15.
- _____. 1962. Stories in stone. *The Naturalist* 22(1):21-26.
- _____. 1977. The battle over Genesis. Review and Herald Pub. Assn., Washington, D.C.
- Coffin, H. G. 1969. Creation—accident or design? Review and Herald Pub. Assn., Washington, D.C.
- Coppedge, J. F. 1973. Evolution: possible or impossible? Zondervan Co., Grand Rapids.
- Corner, E. J. H. 1961. *In* Anna M. Macleod and L. S. Cogley, eds., *Contemporary Botanical Thought*. Quadrangle Books, Chicago.
- Cronin, John R., and Moore, Carleton B. 1976. Amino acids of the Nogoya and Mokoia carbonaceous chondrites, *Geochimica et Cosmochimica Acta* 40:853-857.
- Darwin, Charles. 1859. On the origin of species by means of natural selection. The New American Library of World Literature, New York. Reprint 1958.
- Dickinson, D. R., and Gibson, I. L. 1972. Feldspar fractionation and anomalous Sr⁸⁷/Sr⁸⁶ ratios in a suit of peralkaline silicic rocks. *Geological Society of America Bulletin* 83:231-240.
- Dombrowski, H. 1963. Bacteria from paleozoic salt deposits. *New York Academy of Sciences Annals* 108:453-460.
- Dunbar, Carl O. 1960. Historical geology. John Wiley & Sons, New York.
- Dunbar, Carl O., and Waage, Karl M. 1969. Historical geology. John Wiley & Sons, New York.
- Eccles, J. 1972. The understanding of the brain. McGraw-Hill, New York.

- Eden, M. 1967. Inadequacies of neo-Darwinian evolution as a scientific theory. *In* Paul S. Moorhead and Martin M. Kaplan, eds.. *Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution*, pp. 5-12. The Wistar Institute Symposium Monograph Number 5.
- Evard, Rene, and Schrodetzki, David. 1976. Chemical evolution. *Origins* 3(1):9-37.
- Fox, S. W., ed. 1965. *The origins of prebiological systems*. Academic Press, New York.
- Gish, Duane T. 1972a. *Evolution: the fossils say no!* Institute for Creation Research, San Diego, Calif.
- _____. 1972b. *Speculations and experiments related to theories on the origin of life: a critique*. ICR Technical Monograph, No. 1.
- _____. 1975. *The amino acid racemization dating method*. ICR Impact Series, No. 23. Institute for Creation Research, San Diego, Calif.
- Green, D. E., and Goldberger, R. F. 1967. *Molecular insights into the living process*. Academic Press, New York.
- Hardin, Garrett. 1961. *Nature and man's fate*. Mentor, New York.
- Hilgard, E. W. 1869-1870. *Report of the geologic age of the Mississippi River delta*. Report of the U.S. Army Engineers.
- Himmelfarb, Gertrude. 1967. *Darwin and the Darwinian revolution*. Peter Smith, Gloucester, Mass.
- Hower, J., Hurley, P. M., Pinson, W. H., and Fairbairn, H. W. 1963. The dependence of K-Ar on the mineralogy of various particle size ranges in shale. *Geochimica et Cosmochimica Acta* 27:405-410.
- Hull, D. E. 1960. Thermodynamics and kinetics of spontaneous generation. *Nature* 186:693-694.
- Javor, G. T., and Snow, G. E. 1974. The Apollo sixteen mission and biochemical evolution. *Review and Herald* 151:280-283, March 14, 1974.
- Key, Thomas D. S. 1959. *In* Russell L. Mixer, ed., *Evolution and Christian Thought Today*, p. 21. Wm. B. Eerdmans Pub. Co., Grand Rapids, Mich.
- Koenigswald, G. H. R. von. 1956. *Meeting prehistoric man*. The Scientific Book Club, London.
- Lasker, Gabriel Ward. 1973. *Physical anthropology*. Holt, Rinehart and Winston, New York.
- Lawless, J. G., and Boynton, C. D. 1973. Thermal synthesis of amino acids from a simulated primitive atmosphere. *Nature* 243:405-407.
- Leakey, Richard. 1973. Further evidence of Lower Pleistocene hominids from East Rudolph, North Kenya, 1972. *Nature* 242:170-173.
- Lemmon, R. M. 1970. Chemical evolution. *Chemical Reviews* 70:95-109.
- McAlester, A. Lee. 1968. *The history of life*. Prentice Hall, Englewood Cliffs, N.J.
- Merrell, David J. 1962. Evolution and genetics, pp. 294-296. Holt, Rinehart and Winston, New York.
- Miller, S. L., and Urey, H. C. 1959. Organic compound synthesis on primitive earth. *Science* 130:245-251.
- Monod, J. 1971. *Chance and necessity*. Alfred A. Knopf, New York.
- Nelson, Bruce W. 1970. Hydrography, sediment dispersal, and recent historical development of the Po River delta, Italy. *In* James P. Morgan, ed., *Deltaic Sedimentation, Modern and Ancient*, pp. 152-184. Society of Economic Paleontologists and Mineralogists, Special Pub. 15.
- Neufeld, B. R. 1974a. A better solution. *Signs of the Times* 101(12):14.
- _____. 1974b. Towards the development of a general theory of creation. *Origins* 1(1):6-13.
- Newell, Norman D. 1959. The nature of the fossil record. *Proc. Am. Phil. Soc.* 103(2):264-285.
- Perry, E. A., Jr. 1974. Diagenesis and the K-Ar dating of shales and clay minerals. *Geological Society of America Bulletin* 85:827-830.
- Polanyi, M. 1968. Life's irreducible structure. *Science* 160:1308-1312.
- Pollard, E. C. 1965. The fine structure of the bacterial cell and the possibility of its artificial synthesis. *American Scientist* 53:437-463.
- Price, George M. 1902. *Outlines of modern science and modern Christianity*, p. 112. Pacific Press Pub. Assn., Mountain View, Calif.
- _____. 1941. *Genesis vindicated*, pp. 11, 12. Review and Herald Pub. Assn., Washington.
- _____. 1946. *In the beginning*. The Forum 1:9, 10.
- Ramm, Bernard. 1954. *The Christian view of science and scripture*. Wm. B. Eerdmans Pub. Co., Grand Rapids, Mich.
- Robinson, John T. 1972. *Early hominid posture and locomotion*. The University of Chicago Press, Chicago and London.
- Salisbury, F. B. 1969. Natural selection and the complexity of the gene. *Nature* 224:342-343.
- _____. 1971. Doubts about the modern synthetic theory of evolution. *The American Biology Teacher* 33:335-338.

- Santillana, Giorgio de. 1955. *The crime of Gallileo*. The University of Chicago Press, Chicago.
- Shaffer, Nelson R., and Faure, Gunter. 1976. Regional variation of $^{87}\text{Sr}/^{86}\text{Sr}$ ratios and mineral compositions from the Ross Sea, Antarctica. *Geological Society of America Bulletin* 87:1491-1500.
- Schutzenberger, M. P. 1967. Algorithms and the neo-Darwinian theory of evolution. *In* Paul S. Moorhead and Martin M. Kaplan, eds., *Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution*, pp. 73-75. The Wistar Institute Symposium Monograph Number 5.
- Simpson, George Gaylord. 1945. The principles of classification and a classification of mammals. *Bulletin of the American Museum of Natural History* 85:1-350.
- _____. 1960. The history of life. *In* Sol Tax, ed., *The Evolution of Life*, pp. 117-180. The University of Chicago Press.
- Smith, R. L., and Bailey, R. A. 1966. The Bandelier tuff: a study of ash-flow eruption cycles from zoned magma chambers. *Bulletin of Volcanology* 29:83-103.
- Smith, Uriah, ed. 1860. *Geology, Review and Herald* 16(7):49; July 3. Republication of an article by William Plumer *in* *The Bible True*.
- Steinman, G., Kenyon, D. H., and Calvin, M. 1966. The mechanism and protobiochemical relevance of dicyanamide-mediated peptide synthesis. *Biochimica et Biophysica Acta* 124:339-350.
- Stent, G. S. 1968. That was the molecular biology that was. *Science* 160:390-395.
- Straus, William L., Jr., and Cave, A. J. E. 1957. Pathology and the posture of Neanderthal man. *Quarterly Review of Biology* 32:348-363.
- Walton, John, C. 1976. The chemical composition of Earth's original atmosphere. *Origins* 3(2):66-84.
- Weiner, J. S. 1955. *The Piltdown forgery*. Oxford University Press, New York.
- White, A., Handler, O., and Smith, E. L. 1968. *Principles of biochemistry*, 4th edition. McGraw-Hill, New York.
- White, Ellen G. 1884. *Science and revelation*. *Signs of the Times* 10(11):161, 162; March 13.
- _____. 1897. Manuscript No. 127.
- _____. 1903. *Education*, pp. 99-101. Pacific Press Pub. Assn., Mountain View, Calif.
- _____. 1904. *Testimonies for the church*, vol. 8, pp. 258, 255-262 Pacific Press Pub. Assn., Mountain View, Calif.
- _____. 1905. *The ministry of healing*, pp. 414, 409-418. Pacific Press Pub. Assn., Mountain View, Calif.
- Zuckerman, Solly. 1966. Myths and methods in anatomy. *Journal of the Royal College of Surgeons of Edinburgh* 11(2):87-114.

Genesis and Geology

I. The Bible and Science

The Flood as described in Genesis was a worldwide catastrophe that destroyed a major proportion of life on this planet and must have significantly altered the surface of the earth. Contemporary popular scientific analysis does not include a catastrophe of such proportions. This omission is a significant fulfillment of the apostle Peter's prediction that in the last days there would be willful disregard of creation and the Flood (2 Peter 3:3-6). In place of Biblical creation and the Flood, contemporary scientific thought substitutes evolutionary concepts of biology and geology. Individuals who have a concern for truth are confronted with a question as to which of these conflicting views is correct. Since both the Bible and nature can be sources of information and have the same author, God, a better question would be: What truth do I find when I look both at science and at the Bible? Rightly understood, agreement is expected between the two, and each sheds light on the other (White 1903, p. 128).

A number of references to a major catastrophe somewhat similar to the Genesis flood can be found in the legends from different regions of the world; thus the Bible does not stand unique in this respect. As will be seen later, a significant amount of scientific evidence is also related to an event such as the Flood described in Genesis. Hence a basic premise of this essay is that as one seeks to arrive at the truth about the history of the world, one should investigate as much of the available information as possible, be it

primarily scientific, historical, or Biblical. This approach is felt to be superior to more traditional patterns based on isolated areas of inquiry. More information is better than less.

II. Historical Account of Flood Geology

A. General.—Geology as the scientific study of the physical structure, chemical composition, and history of the earth's crust did not emerge in its modern form until the 18th and 19th centuries, yet the writings of philosophers and theologians since antiquity contained speculations about the history of the earth. The Greek natural philosophers led by Thales and Anaximander discussed such geologic phenomena as the presence of fossil marine shells and remains of plants in unexpected places. The Greeks came up with natural explanations reflecting their world view: the sea had once covered large portions of land; cyclic floods had destroyed all life and the mud had brought forth new life; the land and the sea were constantly switching places. Marine transgression was probably the most popular overall theory; disagreements were over extent, frequency, and causes.

In later centuries Church Fathers such as Tertullian, Chrysostom, and Augustine of Hippo reinterpreted geologic mysteries in the light of the Noachian flood. Geologic features usually were viewed as evidence for the Biblical deluge, or at least proofs of an almighty God at work. Natural philosophers made no sharp distinction between science and theology; both nature and the Bible were considered to be a revelation of the power and majesty of God.

With the Renaissance, an interest in the study of science was revived and the discovery of other lands made possible the study of geologic phenomena on a worldwide scale.

But modern geology did not develop until the 18th century, motivated, perhaps, by a need for practical knowledge of geology in the mining districts of northwestern Europe. Abraham G. Werner (1750-1817), a mineralogist in Freiburg, Germany, introduced the Neptunists theory of geology, or geognosy, as he preferred to call it. Neptunists believed that a universal ocean once covered all the earth, including the highest mountains, and held in solution all the minerals found in the rocks. Werner's understanding of minerals led him to believe that stratification had taken place in uniform layers all over the world, that layers of rock were formed as rock material precipitated out of the ocean in five well-defined stages. This has been called the onion-coat theory.

An opposing school of thought arose, named the Vulcanist or Plutonist, that demanded long ages of time. In the oft-quoted words of their best-known advocate, James Hutton (1726-1797), of Edinburgh, "We find no vestige of a beginning,—no prospect of an end." In *Theory of the Earth* (1795) Hutton developed his belief that all geologic phenomena found on the surface of the earth could be explained by natural causes that were observable even in the present. This concept has since become known as the doctrine of uniformitarianism.

Because uniformitarianism necessitated a vastness of geologic time that contradicted Archbishop Ussher's accepted chronology (4004 B.C. for the creation of the world), and also because Hutton's literary style was confusing, many sought other geological theories. One chief opponent of Vulcanism was Baron Georges L. Cuvier (1769-1832), contributor to the study of comparative anatomy and founder of paleontology. His theory of catastrophism taught that natural catastrophes had at various times destroyed major portions of the earth and that new populations eventually replaced those that were

destroyed. Thus cycles of successive catastrophes were followed by successive repopulation.

The Genesis flood was perhaps the final and worst inundation. After Cuvier, William Buckland was the chief architect of the catastrophist theory. He tied in Cuvier's theories with the Genesis flood. Others followed suit. William Smith (1769-1839), a land surveyor and "father of English geology," believed that fossils occurred in a certain order and could be used to identify the strata. Others assumed the succession of life and decided that fossils could fix the age of each stratum.

By the end of the 1820's natural theology and science seemed to have achieved a beautiful harmony by expanding the Genesis account of a literal creation week into long geologic ages, each of which produced a more advanced form of life than the preceding age. The Flood was no longer viewed as a significant geological event. If it had occurred, it was considered to be either only of limited extent or but one of many such catastrophes.

In 1803 John Playfair put Hutton's theories into a more readable form, but the revolutionary theory of uniformitarianism was not accepted until Sir Charles Lyell (1797-1875) revived, synthesized, and popularized it in his *Principles of Geology* (1830). He effectively argued that uniformitarianism was the principle that allowed explanation of geologic events through natural laws. He convinced most scientists that the earth's present form had come about neither by divine acts of creation 6000 years in the past, nor by the water action of the Genesis flood; rather, its present form resulted from gradual working of natural, observable forces operating under immutable physical laws through vast eons of time. General acceptance of his view paved the way for Darwin's biological evolution.

Thus by the middle of the 19th century uniformitarianism took hold as the foundation principle that influenced the development of geological thought for the next century. The Genesis flood was dismissed by many as the most severe in a series of catastrophes, as a local Mesopotamian event, or simply a myth.

In recent decades, however, uniformitarianism has come more and more into question, and catastrophism, the concept that normal rates of geological processes are interrupted periodically by unusual events, is gaining support even among those who disavow the idea of supernatural intervention in the world. For a more detailed account of some current trends in geological theories, see Section V of this chapter.

B. Seventh-day Adventists and Geology.—During the years following the great disappointment of 1844, the Advent believers were too busy studying prophetic signs of Christ's second coming to be concerned with the debate that was raging among geologists. But their search into the Biblical prophecies soon led them to 2 Peter 3, which discussed the physical way in which the world would end. The first publications reflecting the beliefs of the young Seventh-day Adventist Church carried articles about the composition of the earth's center (core), along with accounts of fires, earthquakes, and volcanic eruptions that tended to herald the imminent appearance of Christ. When the doctrine of the seventh-day Sabbath emerged as a major teaching of the church it became important to defend the Genesis record of a literal seven-day creation week.

Without venturing into the actual study of geology, Adventist theologians sought to find evidence supporting the validity of the Genesis record. The long ages postulated by uniformitarian geology clashed with the literal interpretation of Genesis. Attempts were made to see whether the Biblical record had been misinterpreted. While James White and

J. N. Andrews maintained that Planet Earth had not come into being until creation week, a group known as “secondary creationists” postulated that it was not unscriptural to believe that the chemicals composing the earth (still God-created) had come into being longer than 6,000 years ago. Debate continued without much consensus, but the secondary creationists apparently remained in the minority.

Early Adventist journals reprinted articles by other Christian groups and scientists that either gave evidence confirming a literal interpretation of the Bible or poked fun at flaws in evolutionary geology. The editors, especially Uriah Smith of the *Review and Herald*, were very careful to emphasize their opposition to the *misuse* and *abuse* of geological facts rather than their objections to the science itself. Much was said about confidence that harmony would develop between science and the Bible as the infant science of geology continued to develop new theories. At the same time cautions were raised against being too quick to accept any new claims of science that would seem to cast doubts upon the veracity of the Genesis record. Of course, *true* science was expected to harmonize perfectly with the Bible, since both had the same author.

Within the Seventh-day Adventist Church from 1850 to 1900 science was seen as a tool used by those seeking ways of escaping from God as Creator and Lord. Because all truth was based on the unchanging standard of the Bible, the word of infidel scientists was not to be trusted. This was the theological phase of Adventist Flood geology, which can scarcely be separated from creationism. Most of those interested in geology—for example, A. T. Jones—approached a study of the literature from the standpoint of skepticism, expecting and seeking out contradictions, flaws, and errors.

George McCready Price (1870-1963), teacher and writer, began the scientific phase of Adventist Flood geology. After studying the available geological literature, he found that his faith in a literal interpretation of Genesis remained unshaken. He lamented the Protestant trend toward accepting theistic evolution (the idea that God created the world through a long evolutionary process). Price challenged the churches to a new reformation—vindication of God as Creator by returning to the truth of creation.

In 1902 Price published the first of twenty-five books, *Outlines of Modern Christianity and Modern Science*, challenging the three major evolutionary theories: uniformitarian geology, biological (organic) evolution, and theistic evolution. His later books mainly attacked geology, for he believed it to be the basis for other evolutionary ideas. Arguing against the evolutionary interpretation of the sequence of life forms in the fossil record, Price stated that fossils represent plants and animals of the antediluvian world that perished in the Flood. He affirmed that there was no proof for the uniformitarian assumptions of geology and the evolutionary succession of life forms, which were the sole reasons behind the arbitrary dating of the rocks and fossils.

For nearly a quarter of a century Price dominated the attack against evolutionary geology, influencing other fundamental Christian groups. His impact in the Protestant world caused many Adventists to regard him as practically inspired, and it was difficult to disagree with Price without being regarded as a heretic to the truth of God.

But while Price had attributed practically all the major geologic features of the earth’s crust to the Genesis flood, one of his students, H. W. Clark, found it necessary to modify this stance to allow for possible pre-Flood formations. Price believed there was no real order to the fossils, but Clark saw evidence for order in stratified rocks. Clark provided an explanation for this order with his concept of ecological zonation (see Section VI-C).

Price had interpreted continental glacial evidences in terms of deluge activity, but Clark presented data showing that both mountain glaciation and continental ice sheets on the plains of the northern hemisphere were valid concepts. Although adjustments in interpretation were made by later SDA scientists, they remained opposed to uniformitarian geology and committed to a literal interpretation of the Genesis flood.

III. Description of the Flood as Given in Revealed Documents

The Biblical description of the Flood is brief and contains little geological information. The writings of Ellen G. White are more informative, but much of what happened during the Flood must be deduced from a study of nature. Because of its scarcity, the small amount of information given by inspired writers is of particular interest. We shall begin by considering a few comments about the antediluvian world, which was the world destroyed by the Flood.

The earth was dramatically modified by the Flood; hence its pre-Flood state must have been quite different from the present. There was no rain (Gen. 2:5), but there was an abundance of moisture (v. 6) with rivers (vs. 10–14) and sea(s) (White 1890, p. 97). There is a strong implication of water concealed in the earth (Gen. 7:11; White 1878, 1901). The hills and mountains were not as high and rugged as at present (White 1947, p. 20), and vegetation and animal life were much superior (White 1864, p. 33; 1890, p. 44; 1903, p. 129).

The following chronology of the Flood can be deduced from Genesis 7 and 8. Seven days after Noah entered the ark, subterranean waters erupted, accompanied by rain that lasted at least 40 days. This period of 40 days appears to be included in the subsequently described period of 150 days (see on Gen. 7:24), during which the waters “prevailed”—a term that can be interpreted as involving either a continuing rise in level (Gen. 7:18) or a static condition in which the highest mountains of the whole earth were covered (v. 19). Genesis 8:2 seems to imply that the water level increased to the end of the 150-day period, since that is when the rain stopped and the “fountains” of the great deep were closed. This was followed by a strong wind, subsidence of the water level, and drying for a period of 225 days. When Noah left the ark 382 days from the time he entered it, at least the higher areas in the immediate vicinity were dry (v. 14), and probably some new vegetation had already developed (v. 11). A number of significant geological adjustments could still have taken place following this period.

It is important to note that “the waters of the flood rose gradually” (White 1864, p. 72; 1890, p. 100; 1901). This gradual process fits well with the sequential patterns of many of the sedimentary deposits of the earth, which should be more thoroughly mixed if the Flood had washed everything together at once, as might be surmised. There was also violent activity, including earthquakes, volcanoes, and jets of water that hurled massive rocks into the air (White 1886; 1890, p. 99).

Much tectonic activity (uplift and subsidence of the earth’s surface) must have taken place during the Flood. Some mountains were formed then (White 1864, p. 79; 1885; 1890, p. 108). Other mountains were altered, becoming broken and irregular (White 1890, p. 108). Plains were changed into mountains and mountain ranges into plains (White 1890, p. 108). Some parts of the earth were affected more severely than others (White 1890, p. 108).

A significant statement by Ellen G. White is: “Clay, lime, and shells that God had strewn in the bottoms of the seas, were uplifted, thrown hither and thither ...” (White,

1886). Immense forests were buried and formed the coal and oil we now have (White 1890, p. 108; 1903, p. 129). A vast, turbid sea and soft mud (White 1864, p. 77; 1890, pp. 107, 108) were present as the waters began to subside. The violent wind which helped to dry the earth (Gen. 8:1; White 1890, p. 108) moved the water “with great force, in some instances even carrying away the tops of the mountains” (White 1890, p. 108).

There is no doubt that Ellen G. White and the author of Genesis understood that the Flood covered the whole earth. Genesis 7:19–23; repeatedly emphasizes this concept (Hasel 1975): “All the high mountains under the whole heavens were covered”; “all flesh died that moved upon the earth”; “everything on the dry land in whose nostrils was the breath of life died. He blotted out every living thing that was upon the face of the ground” (RSV). “The entire surface of the earth was changed at the Flood” (White 1864, pp. 78, 79; 1890, p. 107).

IV. Basic Principles of Geology and Paleontology

In order to understand what changes took place during the Flood, a few basic principles regarding the nature of the earth must first be enunciated.

A. The Earth.—The earth has a diameter of 12,757 km. (7,927 mi.) at the equator and is not a true sphere, being somewhat flattened at the poles while bulging at the equator. The polar diameter is 43 km. (27 mi.) less than the equatorial one. This difference in radii is attributed principally to the earth’s axial rotation and suggests a nonrigid nature, a characteristic important to some postulated changes taking place at the Flood. The nature of the inside of the earth is deduced from indirect evidence. In the center is a heavy core (radius of 6,950 km., 4,320 mi.) with a solid center and liquid outer portion. From this core to near the surface is a less-dense mantle, surrounded by an even lighter crust, which averages about 33 km. (20 mi.) in thickness. The crust beneath the continents is much thicker than that beneath the oceans. Catastrophic events such as volcanoes and earthquakes may involve both the mantle and the crust.

At present about 71 percent of the surface of the earth is covered by the oceans, the remaining 29 percent forming the continents. About 3 percent of the ocean surface area covers the continental shelves—relatively shallow regions that geologically are part of the continents.

B. The Crust.—The three basic kinds of rocks—igneous, sedimentary, and metamorphic—are differentiated on the basis of the conditions under which they were formed. Igneous rocks form when magma (molten rock within the earth) cools and crystallizes within or on the earth’s crust. Volcanics are extrusive igneous rocks that have cooled on the surface of the earth.

Sedimentary rocks usually form from the cementation of transported particles varying in size from clay to boulders and are classified according to the nature of the particles forming them. Thus claystone forms from clay and sandstone from sand, et cetera. Certain sedimentary rocks (for example, some limestones, gypsum, and rock salt) are formed by chemical precipitation from solution. Sedimentary rocks are of special interest because they may contain fossils that are evidence of past life.

Metamorphic rocks form where sufficient heat, pressure, and sometimes chemical action cause significant changes to igneous, sedimentary, and other metamorphic rocks. Marble is a metamorphic rock that consists of modified limestone. In certain cases granite may be formed by metamorphism.

Geologists divide the rocks of a given region into larger units called formations. For example, if the sediments in a certain area include a thick sandstone, a thick unit of shale (possibly containing thin layers of sandstone and limestone), plus a massive, thick limestone, division into three formations would appear reasonable. If the layers are very thin and have a unique common characteristic, all of them might be classified into a single formation. By 1967 more than 17,000 different formations and subdivisions had been proposed formally in the United States alone (cf. Keroher 1970, p. 2; Keroher *et al.*, 1966, p. 3).

C. Sedimentary Processes.—A catastrophe such as a flood causes a large amount of sedimentation, a process that involves erosion, transport, and deposition of sediments, which may form sedimentary rocks. Moving water is the most common transport medium. The Yellow River of China transports an estimated 2 billion tons of sediment to the oceans each year (Holeman 1968). In this river the weight of the transported solids sometimes exceeds the weight of the water itself (Mattes 1951). The transporting ability of waves and ocean currents also can be considerable. Capacity for transport by water increases considerably with the velocity. The maximum load of transported solids is proportional to the third or fourth power of the velocity (Holmes 1965, p. 512), meaning that if the velocity is increased by a factor of 10, the load can be 1,000 to 10,000 times greater.

Wind is another transport medium of considerable carrying capacity. Sand from the Sahara has been carried as far as Spain, France, and Italy. In 1883 ash from the Krakatoa volcanic eruption near Java was spread over the entire world, producing colorful sunsets for several years afterward. Tornadoes, of course, can transport very large loads. Extensive dunes, some of them 180 m. (600 ft.) high, have been formed in the Middle East as a result of the transporting action of wind.

Glaciers erode, transport, and deposit large quantities of sediments. In this case transport is comparatively slow. For instance, in 1820 three guides climbing near the summit of Mont Blanc, France, were lost in a crevasse. Forty-one years later their remains were found about two miles away at the foot of Bossons glacier (Bertin 1961, p. 126). Transport by glaciers leaves diagnostic characteristics such as unsorted (mixed, fine to coarse) sediments and scratches on rocks. These scratches (glacial striations) are produced by rocks scraping each other when moved by the ice.

Sediments are eventually transported to a locality where they settle and form sedimentary rocks. The particles are cemented together by various minerals that are often carried in a dissolved state by water. Sedimentary rocks, especially those deposited by water, usually are found in discrete layers called strata, which result from changes in the supply of sediments during deposition. The layers are laid down in a horizontal or near-horizontal plane. This fact is called the law of original horizontality. Tilted strata usually are a result of disturbances in the crust of the earth after deposition. A second law of deposition, quite self-evident, is the law of superposition, which states that in a pile of undisturbed sediments the youngest is at the top and the oldest at the bottom. Little or much time can be involved in the deposition of a sedimentary sequence.

D. The Process of Fossilization.—Any evidence of past life found in the earth's crust is considered to be a fossil. Fossils may include the more familiar mollusk shells, casts of organisms, or the less common tracks of animals. Alteration during preservation may be minimal, as in the case of some frozen mammoths; but often only hard parts

remain, as is common with bones or shells. Permineralized fossils have pore spaces filled with minerals, whereas petrification involves the replacement of organic matter by minerals. Some fossil woods are permineralized; others are petrified. During the process of preservation of many fossils much of the hydrogen, oxygen, and nitrogen of the original organic matter has escaped, leaving only a carbon film and an imprint.

Fossils are abundant in some localities, rare in most sedimentary deposits, and completely absent in many formations. It is of interest to the study of an event such as the Genesis flood that at present most organisms that die are not preserved. Coral reefs are notable exceptions, because the coral skeletons forming the framework of the reef are preserved as the reef grows. *Usually* mechanical and chemical disintegration takes place before preservation. Beerbower (1969, p. 39) states: "In general, the more rapidly an organism is buried and the tighter the seal of its sedimentary tomb, the better the chances of preservation." Both creationist and evolutionary paleontologists recognize the importance of rapid burial for preservation of fossils. The former believe this occurred mostly during the Genesis flood, while the latter believe in many smaller catastrophes with long time periods between.

E. The Geologic Column.—The rocks forming the crust of the earth have been organized into a chronological arrangement with the oldest at the bottom and the youngest at the top. This is called the geologic or stratigraphic column. See the General Geologic Column for details. The identifying names for various divisions of the geologic column will be used in subsequent sections, and the reader should consult this figure if he encounters unfamiliar stratigraphic terms.

Both creationists and evolutionists recognize the sequence and use the same terminology for the geologic column. The former usually consider that it represents a relatively short period of time, while the latter assign billions of years to its development.

Fossils are much more common and complex in the Phanerozoic than lower down. Within the Phanerozoic the most complex forms of life such as mammals and flowering plants are not found in the lowest portion. This will be discussed further in Section VI-C. A number of creationists (e.g., Price 1923, Whitcomb and Morris 1966) have denied the sequential arrangement of fossils in the geologic column by pointing out that in some places this arrangement does not hold and that so-called older rocks rest on top of younger ones. They argue that since there are exceptions to the general order of fossils in the geologic column, the theory of evolution is invalidated. Unfortunately, the examples usually given are from geologically disturbed areas such as the Rocky Mountains and the Alps. These disturbed areas do not provide a convincing argument, since the out-of-order sequences can be explained by uplift and sliding of the older rocks over the younger, a scenario supported in some cases by convincing field data. Even if in some areas the fossils apparently are out of order, for whatever reason postulated, one still has to explain why in most places on the earth the fossils generally are in a consistent order. This will be discussed further in Section VI-C.

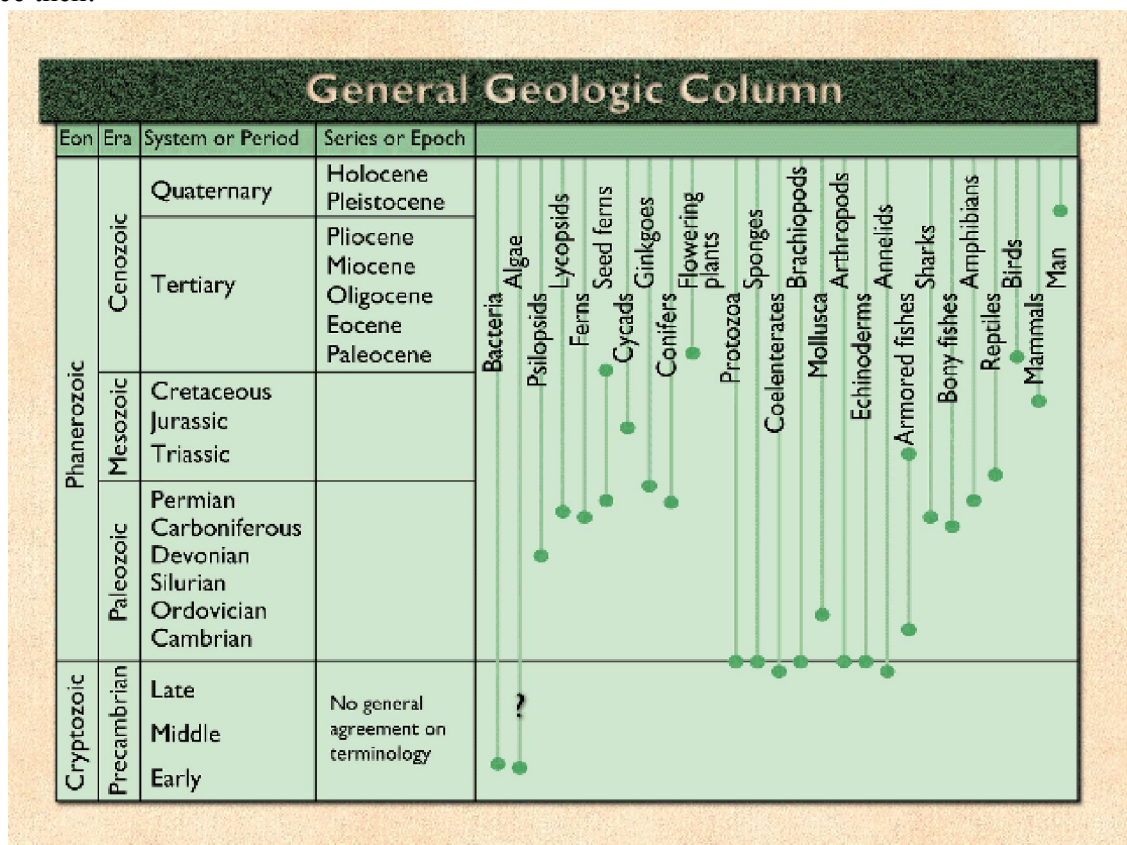
V. Recent Trends in Geological Thought

The science of geology has been undergoing highly significant revolutions in thought over the past decades. These changes are extremely broad in scope and especially pertinent to a model of a catastrophe such as the Flood described in Genesis.

A. Plate Tectonics.—The basic idea of plate tectonics is quite simple: Continents and the floor of the ocean have been moving over the surface of the earth as governed by

patterns of subduction of the earth's surface into the deeper parts or extrusion of material from inside the earth to the surface. The concept is so all-inclusive that it has the characteristic of either being largely accepted or rejected in its entirety. While some speculation regarding the idea had been entertained earlier in this century, it was not until the middle 1960's that it achieved widespread acceptance. Many geologists who did not adopt the new idea were subjected to severe criticism.

Anyone who ponders the shape of the continents is impressed with the apparent conformity of the outline of the east coast of North and South America to the west coast of Europe and Africa. Plate-tectonic theory, and more specifically in this case, continental-drift theory, proposes that during Permian time these continents were together, there was no Atlantic Ocean between, and that they have been drifting apart since then.



In order to understand a little better the process involved, more detail regarding the organization of the surface of the earth must be considered.

Rocks when viewed on a worldwide scale are much less rigid than is normally imagined. The question is largely a matter of scale: For example, a flea crawling over a rubber tire might think the tire to be quite solid, while we think of it as being flexible. The earth appears to behave more like a softer plastic than like a rigid solid. Most people are familiar with the ocean tides, which are caused by the gravitational pull of the moon and sun. The "solid" earth also responds to the pull of the moon and sun, only on a much smaller scale. Earthquakes also suggest a not-so-rigid earth. As one examines a cross section of the surface of the earth, one sees that the crust beneath the continents consists of granitic type of rock, while beneath the oceans the crust consists of a denser basalt

(Section IV-B). A thin veneer of sediment covers much of the continents and the oceans. The granitic continents have a density that is less (2.7) than that of the basalt of the ocean (3.0) or the lithosphere below (around 3.3). Hence the granitic continents literally float on top of denser rock below, somewhat the way wood floats on top of water.

Plate tectonics theory divides the surface of the earth into two main layers. The lithosphere on the outside is more rigid and consists of the crust and about 100 km. (62 mi.) of the upper part of the mantle. The more plastic asthenosphere lies beneath and is part of the mantle. The theory proposes that at certain localities, such as the west coast of South America, the lithosphere is being drawn into the mantle. At other places, such as the mid-Atlantic ridge, the asthenosphere is converted into lithosphere. The continents passively float around on top as the ocean floor is produced and absorbed at various linear localities over the earth, such as the two areas noted. Although the continents that were, according to plate-tectonics theory, together during Permian time are assumed to have been separate and of a different configuration and size before then (Hurley and Rand 1969; Palmer 1974), no definite conclusions concerning this possibility should be drawn (Dewey and Spall 1975). Le Pichon *et. al.* (1973), give a comprehensive account of the concept of plate tectonics.

Evidence in favor of plate tectonics includes: (1) The good fit of some of the continents when put together; (2) the match of distinctive sedimentary deposits between South America and Africa; (3) symmetrical magnetic reversal patterns in the oceanic crust on either side of the ridges, suggesting that basalt is extruded at these ridges and then spreads laterally after picking up the prevailing magnetic polarity; and (4) the concentration of deep-seated earthquake centers up to 700 km. (400 mi.) down in the areas where the lithosphere is presumed to go into the earth, in contrast to shallow earthquakes 20 km. (12 mi.) down in areas such as the mid-Atlantic ridge, where the lithosphere is presumably being formed. A good readable summary of the evidence in favor of plate tectonics is given in Gass *et. al.* (1972).

Objections to the plate-tectonics concept include: (1) The problem in matching some of the continents—for instance, one has to eliminate Central America in order to make North and South America match up to Europe and Africa; (2) lack of a satisfactory explanatory mechanism for plate motion; (3) a significant body of paleontological and paleoclimatical data that suggest that the continents have never moved. Kahle (1974) has edited a recent volume presenting objections to plate tectonics.

The concept of plate tectonics has been accepted by the vast majority of geologists. The most significant change in geological thinking of this century, this theory has caused and is still causing the revision of many geological concepts. Many issues remain unsettled, but, since the idea is so well accepted, it is expected to permeate geological thought for many years. Only time will tell whether the theory will turn out to be permanently successful or only another transient concept. While the data in favor of the concept are very impressive, caution is warranted. Recent data from the floor of the ocean are “as perplexing as they are revealing” (Kaneps 1977). The plate-tectonic theory has a number of interesting features supportive to the concept of the Genesis flood. As Dickinson (1974) points out, the horizontal motions of the lithosphere must be accompanied by major vertical motions, which would be expected in most models of the Flood (Section VI-B). The breaking apart of the continents represents a scale of activity that would be expected in the Genesis flood. The concept of a less rigid earth required by

plate-tectonics theory makes the major changes expected during the Flood all the more plausible.

B. Downgrading of Uniformitarianism.—The concept of uniformitarianism (Section II-A) has been defined in many ways. In general it refers to the principle of interpreting past events in terms of present ones. In its strictest historical definition it implies that present rates of geological processes are sufficient to explain past changes. The doctrine is in contrast to catastrophism, which holds to past catastrophes of a scale larger than observed now. The Flood described in Genesis would be a prime example. Catastrophism has traditionally been rejected by modern geologists who have made uniformitarianism “into a kind of religious dogma” (Hooykaas 1970). This latter reference will give the reader an excellent view of the issues in the controversy.

The past two decades have witnessed a redefinition and downgrading of the uniformitarian concept. Catastrophes are no longer to be completely avoided, and uniformitarianism is being redefined so as to allow a past that is different from the present. The idea of uniformity is being applied to the laws of science and not specifically to geologic processes (Gould 1965); hence it is losing its geological importance. Article titles such as “Uniformitarianism is a Dangerous Doctrine” (Krynine 1956) and “The Present is the Key to the Present” (Valentine 1966) are evidences of this trend. Basic to many of the objections to uniformitarianism are the questions: Why do past rates have to be the same as present ones; can’t change its rate of change? Wasn’t the past evidently different from the present? Additional discussion will be found in the references by Simpson (1963) and Kitts (1963).

Accompanying the recent downgrading of classical uniformitarianism has been an upsurge of catastrophism. For instance Brenner and Davies (1973) state: “In general sediment analyses of ancient environments reject the pervasive opinion that sediment formation and dispersal owe their genesis to the operation of normal process. ... We feel that once studies of Holocene [Recent] and ancient shelf sediments yield sufficient criteria for the recognition of storm deposits, then such deposits will be widely recognized in many similar geological settings.”

Ager (1973, p. 49) reflects the same thinking: “The hurricane, the flood or the Tsunami may do more in an hour or a day than the ordinary processes of nature have achieved in a thousand years.”

The most significant revolution in sedimentological thinking of this century is the turbidite concept. This concept also reflects the trend towards catastrophism. Turbidites are of special interest to a study of the Flood because they can be huge, they occur under water, and they are rapid. A modern example will illustrate.

On November 18, 1929, an earthquake shook the New England coast and the Maritime Provinces of Canada. This earthquake, known as the Grand Banks Earthquake, caused a slumping of a large mass of sediment in the ocean on the edge of the continental shelf. It also freed other sediments that formed loose mud, which slid down the continental slope into the deeper part of the North Atlantic Ocean. It eventually spread over the abyssal plain at the foot of the slope, parts traveling over 700 km. (430 mi.). One might think that a mass of loose mud flowing in the ocean would quickly mix with the sea water and lose its integrity as a separate unit, but this is not the case. The loose mud has a greater density than pure sea water because it is a combination of water and an abundance of rocks, sand, silt and clay particles. This mud flows beneath the lighter sea water somewhat as water flows on land beneath air. Only a small amount of mixing takes place between the mud and the overlying water. Such an underwater mudflow is called a

turbidity current, and the new mud layer deposited as the flow stops is referred to as a turbidite.

Fortunately for science, but unfortunately for commercial telegraphy, 12 transatlantic cables that were near the Grand Banks turbidity flow were broken in this catastrophe, some in two or three places. The first break of each cable was precisely timed by the interruption of the telegraphic transmission and its location determined by resistance and capacitance tests. Those cables that were closest to the epicenter of the earthquake near the top of the continental slope broke almost instantly, probably by the slumping of sediments, while further away an orderly succession could be followed as the turbidity current broke successive cables. Rates of travel were calculated to be sometimes greater than 100 km./hour (60 mi./hour). The last cable, more than 650 km. (400 mi.) out was broken a little over 13 hours after the earthquake (Heezen and Ewing 1952). It has been estimated that the resulting turbidite coming from this mudflow covered more than 100,000 km.² (40,000 mi.²) and had an average thickness of a little less than one meter (2-3 ft.). Its volume is enough to load 20 rows of tankers encircling the earth side-by-side around the equator (Kuenen 1966).

To have such widespread deposits laid down so rapidly may seem quite unusual, yet it appears to be a fairly common phenomenon. In Lake Mead, Arizona, large quantities of sediment accumulate at the eastern end where the Colorado River enters the lake. Occasionally a turbidity type of current transports some of this sediment to the opposite end of the lake, which is over 150 km. (100 mi.) away. In this case the rate of travel appears to be extremely slow, requiring several days to cover the distance. Turbidites have been found in lakes in Switzerland. In 1954 several cables were broken by an earthquake-induced turbidity current that originated on the coast of Algeria and flowed into the Mediterranean. In the floor of the South Atlantic a turbidite sequence with layers of plant material several centimeters thick is found about 1450 km. (900 mi.) from its source, the Amazon River, indicating a turbidity-type transport for a considerable distance (Bader *et al.*, 1970). Heezen and Ewing (1952) suggest turbidite transport for 1,600 km. (1,000 mi.) in the North Atlantic.

Turbidites have certain characteristic features such as normal grading (the gradual change in particle size from coarse to fine as one goes upward through the deposit), grain orientation, and special contact and internal features. Because of this, they can be identified in ancient sediments found in the crust of the earth. From a worldwide catastrophe such as the Flood described in Genesis one would expect there to be a significant number of turbidites, and there is. Their abundance and widespread distribution in sediments, which are found high above sea level and over large areas of continents, further increase the credibility of such a catastrophe. Single turbidites may be 20 m. (66 ft.) thick “deposited by a single ‘whoosh’ of turbid water” (Ager 1973, p. 35), and the volume of the flow producing some of the larger ones is estimated at 100 km.³ (24 mi.³) (Walker 1973).

Since the advent of the turbidite concept 25 years ago, tens of thousands of graded beds piled upon each other, which were previously interpreted as being deposited slowly in shallow water, are now interpreted as the result of rapid turbidity flows (Walker 1973). Even the interturbidite layer, which consists of sediments found “between” some turbidites, is sometimes interpreted as the result of rapid turbidite deposition (Rupke 1969, SEPM 1973).

Scientific evidence indicates that certain events in the past history of the earth may have proceeded much more rapidly than was previously believed. This is as would be expected for a catastrophe such as the Flood. But it is not expected that the concept of uniformitarianism will soon be discarded. Though vigorously disputed in recent years (Valentine 1973), it is still considered by many as one of the fundamental tenets of geology. Contemporary trends are causing a redefinition that reduces its geological usefulness, however.

VI. Flood Models

A. Location of the Flood in the Geologic Column.—Efforts to put together the information from geology and Genesis, must take account of the present state of flux in two areas of geological thought, both of which are of particular importance for Flood modeling—plate tectonics and catastrophism. Therefore caution should be exercised in utilizing present viewpoints.

Measurements show that at present sediments are accumulating very slowly, while the total thickness of sediments found in the crust of the earth is immense. It would require an exceedingly long time for these sediments to accumulate at present rates. A score of studies (Eicher 1976, p. 14) has resulted in a number of investigators concluding that sediments have been accumulating for 3 million to 1.5 billion years. The average of these estimates is only about 5 percent of the presently assumed age of the earth, but all the estimates are far in excess of the few thousand years allowed by Biblical chronology. The creationist resolves the apparent conflict by assuming that most of the sediments of the geologic column were deposited during the Flood at a much more rapid rate than could be expected on the basis of present observations. Reconciliation of ordinary rates of sedimentation and Biblical chronology dictate that most of the geologic column be placed in the Flood.

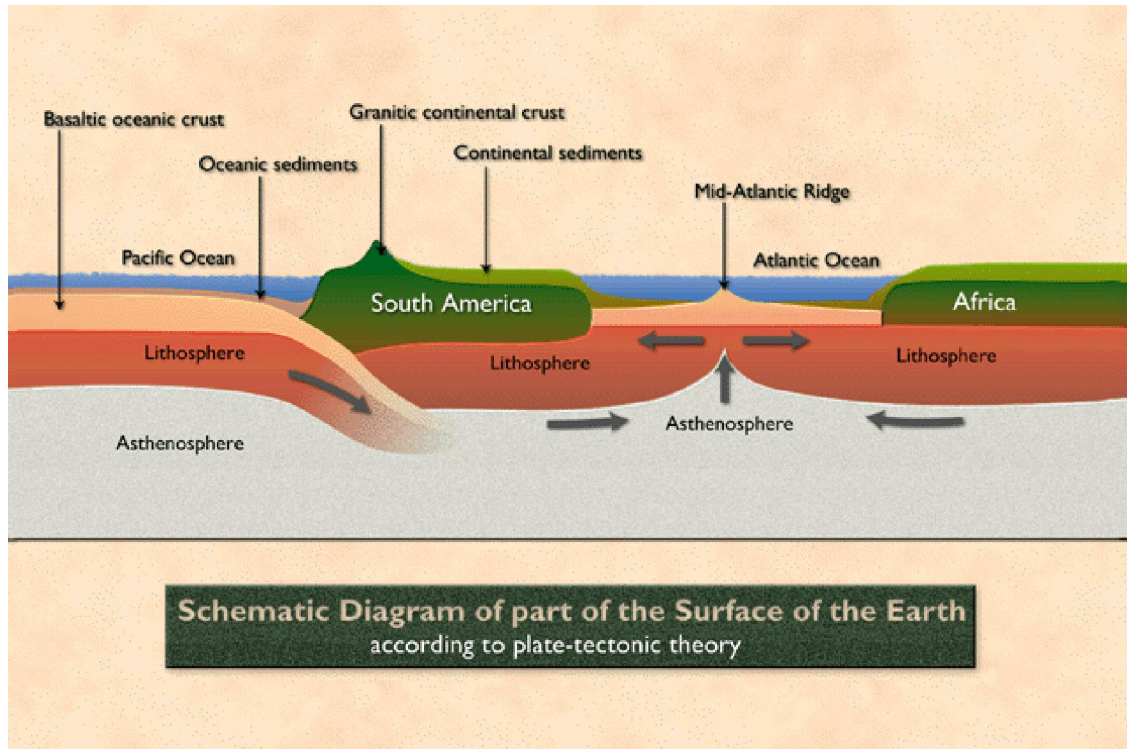
Some creationists and theistic evolutionists have suggested that the Flood might be a Pleistocene or more recent event. One cannot postulate this unless one is willing to assume a very long period of time between the beginning of creation (most of the lower sediments contain some fossils) and the Flood. The description given in Genesis does not suggest this; also there is no place near the top of the geologic column at which one can pinpoint a worldwide flood such that “all the high hills, that were under the whole heaven, were covered” (Gen. 7:19). A local flood has been postulated by some; however a local flood likewise does not fit the description given in Genesis, and it seems unreasonable to have a huge ark built to preserve terrestrial animals from a local flood.

The geologic column shows different kinds of organisms at different levels (Section IV-E). Evolutionists feel that this represents an evolutionary sequence; however, expected intermediates are missing, and it does not appear that macroevolution ever took place (see the previous chapter). Creationists attribute the differences in the biota at various levels in the geologic column to the Flood (Section VI-C). If much time is assigned to the geologic column, one has to deal with different kinds of organisms at different times (levels). This entails either evolution or a series of creations at different times—progressive creation (Ramm 1956, p. 226). This latter concept does not agree with Genesis nor with the more direct words of God given in the fourth commandment: “For in six days the Lord made heaven and earth, the sea, and all that in them is” (Ex. 20:11). If one believes in a truthful, faithful, and just Creator as described in the Bible, one is loathe to imply that He deceived us when He gave the Ten Commandments. One

can postulate some kind of God who would create life in a series of creations or by some process of evolution over long ages and then tell us He did it in seven days, but this seems entirely out of character with the truthful God described in the Bible (Isa. 45:19; Titus 1:2).

B. Models.—Little effort has been put forth to synthesize the new information of geology and revelation into a comprehensive Flood model. Caution is warranted because some of the data is tentative. However, there is also an abundance of more objective data that should be taken into account by anyone trying to put together the information from revelation and science. It is hoped that synthesis will be forthcoming soon. At present only tentative suggestions can be made.

1. Subsidence of Continents Models. This model is basically quite simple. It proposes that before the Flood the continents were underlain by granite, as they are now (Section V-A). The average thickness of the granite bases was less than at present, resulting in lower mountains than we now have. The granite would be more widespread, which would result in smaller seas, some at different levels, as occurs now on the earth (e.g., the Caspian and Great Salt Lake). Some of these seas were located on the granitic base of the continents, while the lowest and most extensive seas were underlain by basalt, as are today's oceans (Figs. 2 and 3). There was a significant amount of water concealed in the earth (Section III). Using the basic plate-tectonics concept of movement of the asthenosphere deeper in the earth, one can accept the concept of a worldwide flood. Initiated by divine intervention, a gradual transfer of this asthenosphere below the continents to below the oceans would cause the continents to sink and the oceans to rise. When the bottoms of the sea reached a level above that of the continents, the marine sediments from these bottoms would be transferred to a lower sinking portion of a continent. This would fit with E. G. White's statement that "Clay, lime, and shells that God had strewn in the bottoms of the seas, were uplifted, thrown hither and thither" (White 1886). The Flood was not a sudden event (Section III), and as the waters slowly rose they gradually destroyed the pre-Flood landscape, thus creating some order in the deposits. Water came from pre-Flood seas, from inside the earth ("fountains of the great deep," Gen. 7:11), and from rain possibly supplied in part by volcanoes. Water vapor is the main constituent of volcanic gases. Since there is evidence of igneous activity and mountain building throughout the geologic column, volcanic activity, intrusion of igneous rocks, and relative uplift of local areas must have occurred throughout the Flood. Turbidity currents would be common.



After the entire earth had been covered with water, reversal of the process described above could have been initiated by divine action. The continents, being lighter, would then rise and the sea would sink, each to its subsequent normal level. This would take place during the last half of the Flood. A great wind would help in drying some of the sediment, even causing the removal of some of the mountaintops (White 1890, p. 108). During this latter half of the Flood, transfers in the asthenosphere and lithosphere would produce the present sea floor and continental pattern, according to the plate-tectonics model (Section V-A), at a more rapid rate. However, the resulting continents would be smaller, with a thicker granitic base to support a heavier load of sediment and a more pronounced topography (White 1947, p. 20). Adjustments in the crust of the earth would have continued long after Noah left the ark, gradually decreasing to present levels. A significant amount of volcanic ash in the atmosphere could have reduced the temperature by occluding some of the radiant energy from the sun (Brooks 1949, p. 208). This reduction could have contributed to the development of extensive glaciation, especially at the poles.

This tentative model should be viewed as a framework for further investigation.

2. Reversal of Continents and Oceans Model. This model proposes that during the Flood those portions of the crust of the earth located at higher elevations were washed into the pre-Flood seas. These seas are postulated to have been smaller than the present ones. As the higher localities were eroded by the rains and waters of the Flood, isostatic adjustments (vertical movements of the crust of the earth in response to changes in load) would raise the original highlands higher, facilitating further erosion, while thicker sediments accumulated in the pre-Flood seas. Eventually the pre-Flood “continents” would be completely eroded while the deeper sediments in the seas were subjected to metamorphism (see Section IV-B). Absorption of the under part of these areas of deposit (seas) into the soft magma inside the earth would make the remaining portions lighter,

and isostatic adjustments would cause them to rise and form the present continents. The result would be a reversal of the pre-Flood seas and continents. Extensive volcanic activity would be associated with these events, causing some of the widespread basalt flows now found on and in the sedimentary crust of the earth. Drifting of these new continents could produce the present pattern of continental distribution and ocean floor structure. However, this drifting and the isostatic adjustments would have to occur at much faster rates than presently assumed by most geologists.

Many of the details of the subsidence model (Section VII-B-1) such as volcanism, glaciation, and turbidity currents, can be fitted into the reversal model. The complete destruction of the pre-Flood continents posed by the reversal model does not seem to agree with Ellen G. White's suggestion that some portions of the continents were less severely affected than others—mountains becoming broken and irregular rather than destroyed, plains (not oceans) changed into mountains (White 1890, p. 108).

3. Other Ideas. Late in the 19th century it was proposed that the earth contracted as it cooled, producing folded mountain ranges, the process being similar to the shrinking of a drying apple. This idea gained the status of orthodoxy in geology, but is no longer popular. It has a few interesting possibilities for a Flood model, especially with reference to the origin of folded mountains and the rise of continents owing to thickening of the crust as the earth shrank.

A bolder hypothesis, that of earth expansion, has received additional attention since the advent of plate-tectonics theory. While at present most geologists reject the idea, a continuous thread of support persists in the scientific literature (Carey 1975; Stewart 1976). One does not know what future scientific investigation may reveal about this concept, nor to what degree, if any, expansion may have taken place. The concept does have some features of interest to the creationist and it is a possibility that should not be arbitrarily excluded. It could be associated with the third day of creation week (Gen. 1:9, 10) or with the end of the Flood, causing separation of the continents and forming our present oceans.

These ideas are speculative, but they offer some interesting possibilities. They are not generally accepted; however, it is only a few years ago that the idea of continental drift was considered incorrect.

4. Conclusions. Obviously, not all the models presented above can be correct, but they may be interrelated. There is an element of the reversal model in the subsidence model when one considers what happened to the pre-Flood seas situated on the granitic crust. A moderate amount of earth expansion and contraction could be involved in any of the models. What actually happened may involve parts of each model discussed here, and of others yet unproposed. Truth is seldom as simple as our limited intellects tend to make it.

C. The Fossil Sequence and the Flood.—As one notes the kinds of organisms found in the geologic column, it becomes apparent that what are commonly considered the most complex forms of life do not appear in the lower parts. The general distribution pattern of fossils in the sediments is explained by many creationists on the basis of a natural, ecological sequence being buried by the Flood. It is assumed that before the Flood the distribution of plants and animals varied from place to place as it does now. This is easily noted in mountainous areas where the plants and animals at lower altitudes will often be significantly different from those higher up in the same region.

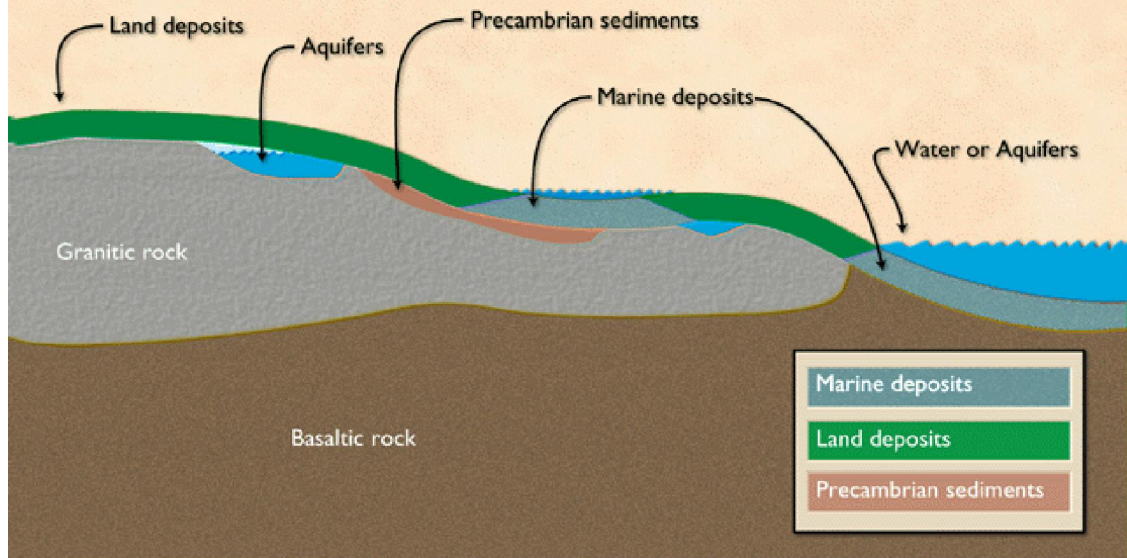
A Tentative Flood Model

Preflood

Preflood

Flood

Postflood

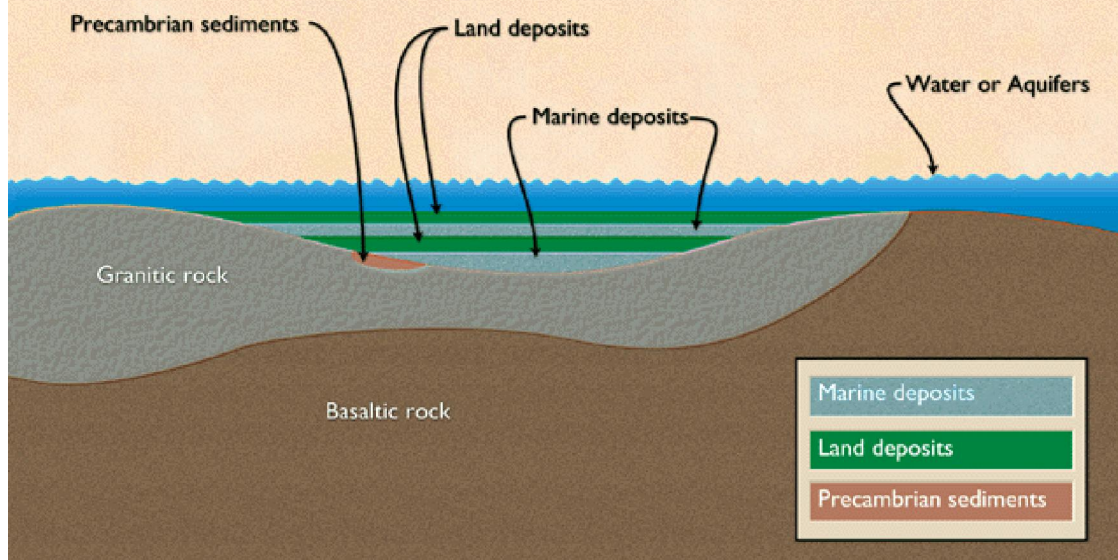


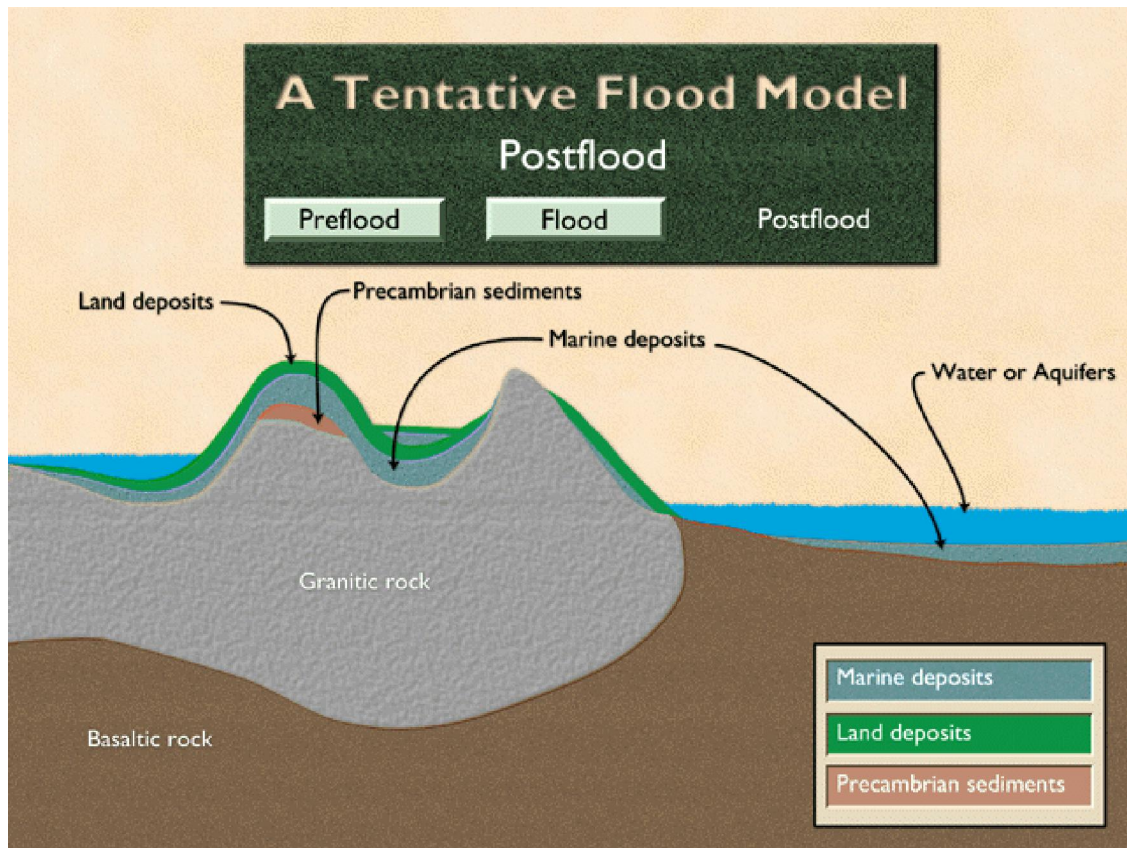
A Tentative Flood Model

Preflood

Flood

Postflood

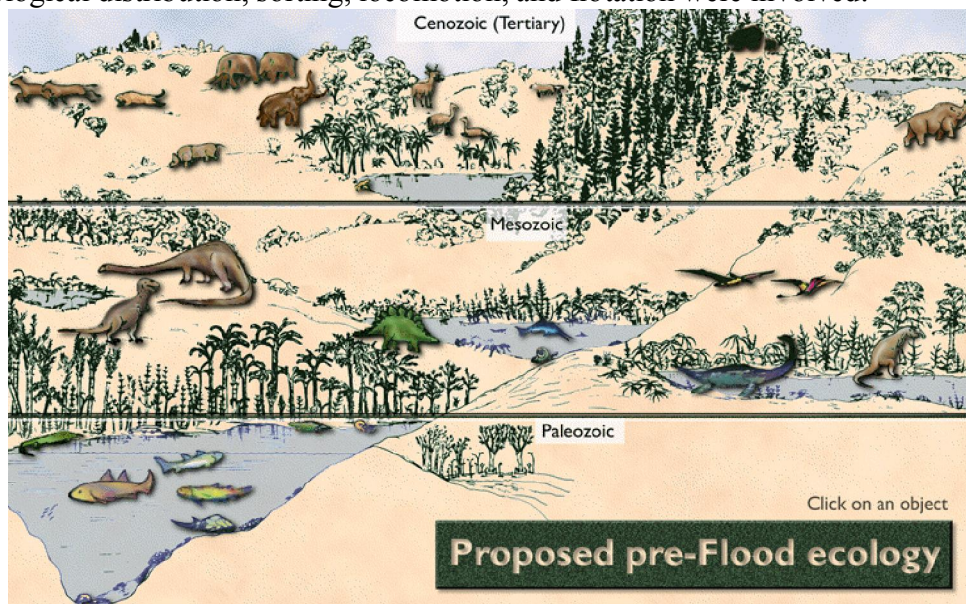




In considering how the Flood may have caused the sequence found in the fossil record, one has to differentiate between the small local floods that are familiar to us and an unfamiliar worldwide event as described in Genesis. We usually think of a flood washing sediment from a higher area into a lower one and mixing it in a somewhat disorganized pattern. On the scale of a worldwide flood, this pattern would not be so disorganized. A sequence would result as gradually rising flood waters destroyed the various pre-Flood landscapes with their unique organisms. Great waves would be expected during such a catastrophe. Ellen White refers to the ark's being flung from billow to billow (White 1890, p. 100) and transported in varied directions (*ibid.*, p. 99). A 3-m. (10-ft.) wave can produce a pressure of 70 grams/cm.² (30 lbs./in.²). Often turbidity currents (Section V-B) would carry sediments to lower areas, placing one layer on top of another in a somewhat orderly fashion, as is noted in many of the sedimentary sequences of the crust of the earth. The order of the fossils in these sequences would to some degree reflect the order of the eroded landscapes destroyed by the gradually rising waters. This idea, referred to as the "ecological zonation theory," was developed by H. W. Clark. Figure 4, taken from his book (Clark 1946), illustrates a proposed pre-Flood landscape. If this landscape were destroyed by the Flood as described above, one would obtain the sequence we now find in the fossil record. The evidence in the geologic column that suggests to some people a progressive evolutionary sequence could equally well indicate that on the pre-Flood surface of the planet various types of organisms were characteristic of various elevations. This is somewhat similar to the present situation; for instance, we don't find eagles and cows in the bottom of the ocean.

There is sometimes a tendency to oversimplify the ecological zonation model by equating present ecological distribution with the pre-Flood one. This must not be done, because the fossil record does not allow it. For instance, at present our marine organisms are almost exclusively at sea level or lower. When we look at the fossil sequence we find an abundance of land plants, usually different from any now living, in the Carboniferous. Higher up in the Permian we find above these land plants an abundance of marine organisms, often different from those lower down. This arrangement is repeated again in the Mesozoic. A similar arrangement is not found on the present surface of the earth. If one postulates seas before the Flood at different levels (Figs. 3 and 4), one can explain the sequences on the basis of a different pre-Flood ecological distribution. A second alternative is to postulate uplift and/or subsidence of some ecologically unique areas before destruction by the rising waters, thus changing the normal sequence. Still other models can be proposed.

The degree of uniqueness of fossils at different levels in the geologic column and the widespread distribution of some of these fossil types make the ecological zonation model the best general explanation for the fossil sequence in the context of a Flood model. It also explains the presence of index fossils. Other factors that have been used to explain the fossil sequence include gravitational sorting (the more dense organisms sinking deeper during the Flood), locomotion (the more motile organisms escaping to the highest levels during the Flood), and flotation characteristics. There is no doubt that these factors would be significant in a limited way during the Flood, but it is highly doubtful that any one can explain the whole sequence of fossils found. Probably a combination of original ecological distribution, sorting, locomotion, and flotation were involved.



The ecological zonation model proposes a *different* pre-Flood ecology from the present. It is expected that the Flood would greatly alter the ecology of the earth. Paleontological data indicate a past quite different from the present. For instance, past temperatures can be estimated on the basis of warm- or cool-climate fossil organisms. The warm-climate belt of the earth appears to have been much more widespread in the past (Menzies *et al.*, 1973, p. 350). Brooks (1949, p. 204) estimated that the past temperature of the continental regions now at north latitudes of 40°-90° averaged 7°C

(13°F) warmer than at present throughout the Cambrian to the Miocene. Apparently the past is the key to the past!

As indicated in Section VI-A, creationists usually include most of that portion of the geologic column that contains fossils (Phanerozoic) in the Flood. It would be desirable to be able to state where in geologic column the Flood began and ended. However such a simple statement should not be expected for an event so complex as the Flood. In one part of the world the last deposits laid by the Flood may have been of Jurassic type with nothing deposited on top, while in other places it may have been Miocene. The Miocene may represent a maximum for the Flood, since there are significant climatic and fossil changes at this point in the geologic column. The beginning of the Flood should also be difficult to define, since there may have been some fossilization before the Flood. This would certainly be the case if there were any coral reefs then. These structures consist largely of fossils. At the Flood they would have been broken up, transported, and redeposited, forming recycled fossils. The Cambrian may be the beginning of Flood activity in many areas, while elsewhere the beginning may have been higher or lower.

Some rare fossils of worms and jellyfish have been reported in the uppermost Precambrian. These could represent either pre-Flood or Flood deposits. The boundary between the Cambrian and the Precambrian is not well defined (Cowie and Glaessner 1975; Stanley 1976). Precambrian fossils are rare and include a number of dubious or rejected identifications (e.g., Cloud 1973; Knoll and Barghoorn 1975). Stromatolites, structures assumed to have been produced by algae, are abundant in some Precambrian sediments—some of them quite far down in Precambrian sediments (Mason and Von Brunn 1977). Should these turn out to be real evidence of past life, they would represent pre-Flood deposits, or one would have to move the beginning of the Flood, at least in these localities, to a much lower level than is customarily done by most creationists, who often place it in the lower Paleozoic.

D. Evidence for the Genesis Flood.—Since the Flood, as described in Scripture, is a unique event, it is difficult to conceptualize it. Because the same can be said for events that never occurred is no reason for denying the occurrence of the Flood. A sound system of investigation should allow for unique events. While it is not possible to obtain direct evidence for the Flood, a major catastrophe of such dimensions should leave abundant circumstantial evidence that supports its occurrence.

1. Marine Sediment Distribution. A singular feature of the sediment layer covering the earth is that the sediment cover on the continents averages about five times the thickness (1.5 km.) of that found on the floor of the ocean. Some of the sediment originally carried to the ocean by rivers, et cetera, may have been absorbed into the mantle by a process of subduction that draws the lithosphere into the mantle (Section V-A). How much might be drawn in is a matter of conjecture. Of greater significance to the question of a worldwide flood is the fact that about a third of the sediments on the continents contain marine fossils, and thus originated from the sea. This fits in well with the idea of the uplift of marine sediments given by Ellen G. White (Section III). An interesting suggestion is that at present the sediments of the ocean are sparse, because they have accumulated only from the latter stages of, and since, the Flood, the marine sediments of the continents represent what was in the oceans before the Flood. Geologists who do not believe in a worldwide catastrophe such as the Flood usually explain the presence of abundant marine deposits on the continents by assuming that extensive parts

of the continent accumulated marine deposits while they were below sea level for long periods of time (e.g., Brooks 1949, p. 206; Sloss and Speed 1974). This idea has not been completely unchallenged (Wise 1972). The idea of lower continents in the past is quite similar to the first model proposed above (Section VI-B-1) in which the continents sank down during the Flood. Regardless of this, the great abundance and widespread distribution of marine deposits on the continents is unexpected, except on the basis of a Genesis-type flood.

2. Widespread Nature of Unique Land Deposits on Continents. The widespread nature of unique sedimentary deposits with land-derived fossils on the continents is evidence of a kind of catastrophic activity on the continents for which there are no contemporary analogs. An outstanding example is the Triassic fossil-wood-bearing Shinarump conglomerate, which is a member of the Chinle Formation found in the Southwestern United States. This conglomerate, which occasionally passes into a coarse sandstone, is usually less than 30 m. (100 ft.) thick, but is spread over nearly 250,000 km.² (100,000 mi.²; Gregory 1950). It suggests that forces much greater than those at present were necessary to spread a coarse continuous deposit such as this over so wide an area. That local sedimentary activities, as claimed by some, should produce such continuity is difficult to imagine. Basal conglomerates of other formations present the same evidence.

The widespread, continuous, and unique nature of many formations also indicates extensive deposition on a scale that is suggestive of a world flood. For example, the varicolored dinosaur-bearing Jurassic Morrison Formation of the Western United States extends from Kansas to Utah and from Canada to New Mexico (Hintze 1973), yet its average thickness is only about 150 m. (500 ft.). These widespread formations, of which an extensive list could be provided, reflect lateral depositional continuity on a scale unknown at present. Many geologists explain these as a composite of local sedimentary features. Again it is extremely difficult to imagine local sedimentary phenomena producing these relatively thin but widespread and continuous formations. One also wonders how local activity could be so uniform over the long periods of time assumed for the deposition of the formations. The data fit better with the idea of a catastrophic flood as described in Genesis.

3. Reduced Provinciality in the Fossil Record. The provinciality (localization of distribution) of organisms is much greater now than in the fossil record. In other words, fossil species appear much more widespread over the surface of the earth than living species. Many paleontologists have referred to this difference (e.g., Sohl 1969; Barghoorn 1953; Valentine and Moores 1972; Valentine 1973). Reduced provinciality is expected in a worldwide flood and in which some lateral transport of organisms should occur. This could also result from more even climatic conditions in the original earth (White 1890, p. 61; 1947, p. 46). In either case the data support the model given by inspiration.

4. Turbidities. The new turbidite concept of a rapid water sedimentation discussed in Section V-B fits in very well with a catastrophe such as the Genesis flood. Only time will tell what proportions of the sediments will eventually be identified as turbidites. Turbidites are often complex, not always graded, and sometimes unidentifiable. Dott (1963) mentions "somewhat less than 50 percent" turbidites for some sediments in the Ventura Basin in California. In a section from Devonian through Eocene in the Northwest

United States he estimates 30 percent as graded (turbidites), 15 percent as limestone, 15 percent as volcanic, and 40 percent of uncertain origin.

One can postulate turbidity currents in large lakes and over submerged portions of continents, and then allow for long intervening periods of time. But the increasing number of deposits on the continents that are being identified as turbidites indicate underwater activity on a scale that would be expected in the Flood, and is not representative of present sedimentary patterns on the continents.

5. Paucity of Erosional Features at Unconformities. Unconformities, which represent time gaps in the geological record, and quite commonly reported in many sedimentary sequences. These gaps should show the effects of time if it ever transpired. Erosion during these long time gaps should be evident and sometimes preserved as these features become buried under a new cycle of sedimentation. The almost complete absence at unconformities of major erosional features, such as the numerous canyons we now see on the surface of the earth, suggest little time between cycles of sedimentation, as would be predicted by a Flood model. A few fossil canyons exist (e.g., Cohen 1976), but their almost universal absence in all ancient sediments compared to their present abundance over the surface of the earth supports the concept that deposition of sediments in the past was rapid, with little time for erosion.

The peneplain concept has been used by some geologists in an effort to explain the absence of major erosional features at unconformities. Peneplains are considered to be widespread erosional surfaces of low relief. The unique sequence of events required to produce peneplanation (Thornbury 1969, p. 185-188) has caused the concept to be questioned by many (e.g., Holmes 1965, p. 575; Foster 1971, p. 65). If peneplains are a common feature of the fossil record, there should be modern examples; yet Bloom (1969, p. 98) questions the existence of any modern peneplains.

It seems apparent that the characteristics of the unconformities in the geological record provide support for the relatively continuous deposition required by a Flood model.

VII. Selected Topics Related to Flood Geology

A. Source of Sediments.—There is a significant volume of sedimentary rocks on the surface of the earth. Because quite often fossils are present, much of this is assumed to have been deposited during the Flood (Section VI-A). Some regions of the earth have no sediments, elsewhere sediments reach a depth of about 16 km. (10 mi.). The average thickness is estimated to be about 800 m. (2,600 ft.) (Blatt 1970; Pettijohn 1975). Considering the size of the earth, this is “only a thin surficial layer” (Pettijohn 1975), which on an ordinary 30-cm. (12-in.) globe would be represented by a layer less than one fourth the thickness of an ordinary sheet of paper. The average amount of erosion necessary during the Flood to produce this sediment would approximate the average thickness of sediments less the amount of sediment coming from activity such as: (1) volcanic ejecta, (2) Precambrian sediments that may not be associated with the Flood (see Section VI-C), (3) some of the erosion since the Flood, and (4) sedimentary material that may have surfaced with the fountains of the great deep (White 1890, p. 99). These could reduce the estimated average depth of erosion during the Flood to about one half (400 m. or 1,300 ft.). This figure is not entirely unreasonable considering that during a flood in 1883, Kanab Creek in Utah cut out an 80-m. (260-ft.)-wide section to a depth of 15 m. (50 ft.) in less than eight hours (Gilluly *et al.*, 1968, p. 218; see also Bruhn 1962).

Various kinds of sediments would come from different sources. Clay and lime from the oceans (Section III) would be a source of some shales (from clay) and most of the limestone (from lime). The sandstones, which are often free of fossils, may have come from the fountains of the great deep or fossil-free Precambrian sediment present before the Flood. These sediments would also serve as a source for other Flood deposits. Coal and oil would come from the vegetation that grew before the Flood. "The vast forests buried in the earth at the time of the Flood, and since changed to coal, form the extensive coal fields, and yield the supplies of oil that minister to our comfort and convenience today" (White 1903, p. 129; see also 1890, p. 108). The pre-Flood vegetation could easily provide the coal and oil we find in the earth. Of late we are becoming aware that there is not an unlimited supply of this fossil fuel. Estimates run from 5 to 10×10^{12} metric tons of carbon (e.g., Borchert 1951; Reiners 1973). One fourth the earth covered by a maximum "normal range" (Whittaker 1970, p. 83) temperate forest would yield 10×10^{12} metric tons of carbon, enough to form all our coal and oil. It is of interest in this context that Ellen G. White describes the pre-Flood vegetation as much superior to the present (White 1864, p. 33; 1890, p. 44; 1903, p. 129). It should be noted that the figures given above do not include the reduced carbon found in shales. Ellen G. White does not appear to be referring to this. The amount of reduced carbon (not the carbonate of limestone, etc.) of shales is about 500 to 1,000 times that found in coal and oil (Rubey 1951; Borchert 1951). Other sources of carbon can be postulated for this, including (1) the antediluvian humus (Pearl 1963), (2) an inorganic origin such as has been postulated for petroleum (Porfir'ev 1974), (3) reduced carbon that may have been part of the original earth, such as occurs in some meteorites. A relationship between the organic matter of meteorites and sediments has been proposed (Degens 1964).

B. Time Factors and Sedimentation.—One of the basic differences between the concept of a catastrophic flood and a process of slow evolution of the earth is the amount of time involved. The standard geologic time scale based mainly on radiometric dating is one of the most commonly used arguments against the idea of a universal flood. It proposes about 600 million years for the Phanerozoic and 4 to 5 billion years for the age of Planet Earth. A number of geologic features of the earth suggest that this time scale is not correct for sediments. For example:

1. It seems reasonable to assume that sedimentation always will be proceeding in a number of places over the earth, and that at least some of these places will be preserved. If one takes the thickest portions of the various sedimentary units of the geologic column, the total maximum thickness obtained is the amazing total of 138,000 m. (452,000 ft.) (Holmes 1965, p. 157). Yet this is far too thin to account for the proposed amount of time for the evolutionary model of the earth (Ager 1973, p. 34; see also Section VI-A and Roth 1975). A flood as described in the Bible would produce much more rapid sedimentation over a much shorter time.
2. Along the same line of reasoning is the rate of denudation of the continents by erosion; according to present rates the continents should have been eradicated more than a score of times during supposed geologic time (Dott and Batten 1976, p. 136; Judson 1968; Gregor 1968). The standard explanation that the mountains have undergone repeated uplift to provide a continuous sedimentary record does not seem to agree with the persistent presence of the geologic column. Again the concept of a single catastrophe can resolve the dilemma.

3. A number of erosional remnants that supposedly have survived hundreds of millions of years of weathering with very little erosion (Twidale 1976) also suggests a shorter time than is generally accepted (Roth 1976).

C. Glaciation and the Flood.—Small climate changes can have profound results on the earth. It takes an average decrease of only a few degrees (1.5°-8°C., 3°-14°F.) to bring about an ice age (Plass 1956).

Evidence of glaciation is found in a number of places in the geologic record of the past. The most important and least questionable evidence for glaciation is found in the Pleistocene, the Permo-Carboniferous, and the Precambrian. The Pleistocene, the most important and least questioned of all, is assumed by many creationists to be a post-Flood glaciation phenomenon (Section VI-B-1). The evidence for Permo-Carboniferous glaciation found in the Southern Hemisphere comes near the middle of the geologic column and of the Flood, and may not really represent glaciation. Crowell (1964) lists seven alternate interpretations for deposits that can appear as glacial (till and tillite). The most questionable of the three glacial deposits considered above, the Precambrian glaciation (1) may not be glaciation or (2) may represent glaciation by lowered temperatures when “darkness was upon the face of the deep” (Gen. 1:2).

D. Fossil Man and the Flood.—Many alleged findings of fossil man or his tracks in pre-Pliocene deposits have been reported; however, to date it does not appear that any unequivocal examples are available (e.g., Neufeld 1975). Many wonder why large pre-Flood men (Gen. 6:4) are so notoriously absent from the fossil record. No scientifically satisfactory answer to this question has yet been found. The reader may find assistance in his own thinking from some of the information given by Ellen G. White (White 1890, pp. 100, 102, 108).

VIII. Conclusions

It is noteworthy that so many features that relate to the past character of the earth's crust do not represent present conditions. Many of these major features are best explained in the context of a Flood model (Section VII-D), but efforts to synthesize the geologic data with the testimony of inspired writers are handicapped by a paucity of firm information. The Bible and the writings of Ellen G. White give only a few details regarding the geologic events of the past. The current revolutions in geological thinking make many of the conclusions deduced from a study of nature regarding the history of the earth only tentative. This essay merely represents the status of our knowledge at present.

As one contemplates the flood of Genesis, which has no contemporary analog, the task of interpretation becomes particularly challenging, but it is a challenge well worth attention. In meeting this challenge creationists should do only the best quality of work.

Traditional geological *interpretation* and Genesis have been far apart. Careful examination provides a basis for confidence that geologic *data* are not inconsistent with Genesis. More and more harmony between God's two books, nature and revelation, should emerge from continued investigation of the history of the earth.

REFERENCES

- Ager, D. V. 1973. The nature of the stratigraphical record. John Wiley & Sons, New York.
- Bader, R. G. *et. al.* 1970. Initial reports of the Deep Sea Drilling Project, Vol. IV. Scripps Institution of Oceanography, University of California.
- Barghoorn, E. S. 1953. Evidence of climatic change in the geologic record of plant life. *In* Preston Cloud, ed. 1970. *Adventures in Earth History*, pp. 732-741. W. H. Freeman, San Francisco.

- Berbowyer, J. R. 1969. Search for the past, an introduction to paleontology, 2d ed. Prentice-Hall, Englewood Cliffs, New Jersey.
- Bertin, L. 1961. Larousse encyclopedia of the earth. Prometheus Press, New York.
- Blatt, H. 1970. Determination of mean sediment thickness in the crust: a sedimentologic method. Geological Society of America Bulletin 81:255-262.
- Borchert, H. 1951. Zur Geochemie des Kohlenstuffs. *Geochimica et Cosmochimica Acta* 2:62-75.
- Brenner, R. L., and Davies, D. K. 1973. Storm-generated coquinoid sandstone: genesis of high-energy marine sediments from the Upper Jurassic of Wyoming and Montana. Geological Society of America Bulletin 84:1685-1686.
- Brooks, C. E. P. 1949. Climate through the ages: a study of the climatic factors and their variations. McGraw-Hill, New York.
- Bruhn, A. F. 1962. Southern Utah's land of color. Bryce Canyon Natural History Assn., Bryce Canyon, Utah, and Zion Natural History Assn., Springdale, Utah.
- Carey, S. W. 1975. The expanding earth—an essay review. *Earth-Science Reviews* 11:105-143.
- Clark, H. W. 1946. The new diluvialism. Science Publications, Angwin, Calif.
- Cloud, P. 1973. Pseudofossils: a plea for caution. *Geology* 1(3):123-127.
- Cowie, J. W., and Glaessner, M. F. 1975. The Precambrian-Cambrian boundary: a symposium. *Earth-Science Reviews* 11:209-251.
- Crowell, J. C. 1964. Climatic significance of sedimentary deposits containing dispersed megaclasts. In A. E. M. Nairn, ed. 1964. Problems in Palaeoclimatology, pp. 86-99. Interscience Publishers, John Wiley & Sons, New York.
- Degens, E. T. 1964. Genetic relationships between the organic matter in meteorites and sediments. *Nature* 202:1092-1095.
- Dewey, J. F., and Bird, J. M. 1970. Mountain belts and the new global tectonics. *Journal of Geophysical Research* 75:2625-2647.
- Dewey, J., and Spall, H. 1975. Pre-Mesozoic plate tectonics: how far back in history can the Wilson Cycle be extended? *Geology* 3:422-424.
- Dickinson, W. R., ed. 1974. Tectonics and sedimentation. Society of Economic Paleontologists and Mineralogists Special Publication No. 22.
- Dott, R. H., and Batten, R. L. 1976. Evolution of the earth, 2d ed. McGraw-Hill, New York.
- Eicher, D. L. 1976. Geologic time, 2d ed. Prentice-Hall, Englewood Cliffs, N.J.
- Flori, J., and Rasolofomasoandro, H. 1973. Évolution ou Création? SDT, France.
- Gass, I. G., Smith, P. J., and Wilson, R. C. L., eds. 1972. Understanding the earth, 2d ed. Artemis Press, England.
- Gillully, J., Waters, A. C., and Woodford, A. O. 1968. Principles of geology, 3d ed. W. H. Freeman, San Francisco.
- Gould, S. J. 1965. Is uniformitarianism necessary? *American Journal of Science* 263:223-228.
- Gregor, C. B. 1968. The rate of denudation in post-Algonkian time. *Kononklijke Nederlandse Academie van Wetenschappen* 71:22-30.
- Gregory, H. E. 1950. Geology and geography of the Zion Park region, Utah and Arizona, U.S. Geological Survey Professional Paper 220.
- Harland, W. B. *et. al.* 1967. The fossil record. Geological Society of London.
- Hasel, G. F. 1975. The Biblical view of the extent of the flood. *Origins* 2:77-95.
- Heezen, B. C., and Ewing, M. 1952. Turbidity currents and submarine slumps, and the 1929 Grand Banks earthquake. *American Journal of Science* 250:849-873.
- Hintze, L. F. 1973. Geologic history of Utah. Brigham Young University Geology Studies 20, Part 3. Provo, Utah.
- Holeman, J. N. 1968. The sediment yield of major rivers of the world. *Water Resources Research* 4(4):737-747.
- Holmes, A. 1965. Principles of physical geology, 2d ed. Ronald Press Co., New York.
- Hooykaas, R. 1970. Catastrophism in geology, its scientific character in relation to actualism and uniformitarianism. North-Holland Publishing Co., Amsterdam.
- Hurley, P. M., and Rand, J. R. 1969. Pre-drift continental nuclei. *Science* 164:1229-1242.
- Judson, S. 1968. Erosion of the land—or what's happening to our continents? *American Scientist* 56(4):356-374.
- Kahle, C. F., ed. 1974. Plate tectonics—assessments and reassessments. American Association of Petroleum Geologists Memoir 23.

- Kaneps, A. 1977. Deep-sea drilling project. *Geotimes* 22(1):18, 19.
- Keroher, G. C. 1970. Lexicon of geologic names of the United States for 1961-1967. U.S. Geological Survey Bulletin 1350.
- _____. *et. al.* 1966. Lexicon of geologic names of the United States for 1936-1960. U.S. Geological Survey Bulletin 1200.
- Kitts, D. B. 1963. The theory of geology. *In* C. C. Albritton, *ed.* 1963. *The Fabric of Geology*, pp. 49-68. Addison Wesley, Reading, Mass.
- Knoll, A. H., and Barghoorn, E. S. 1975. Precambrian eukaryotic organisms: a reassessment of the evidence. *Science* 190:52-54.
- Krynine, P. D. 1956. Uniformitarianism is a dangerous doctrine. *Journal of Paleontology* 30(4):1003-1004.
- Kuenen, P. H. 1966. Turbidity currents. *In* R. W. Fairbridge, *ed.* 1966. *The Encyclopedia of Oceanography*, vol. 1, pp. 943-948. Reinhold Publishing Co., New York.
- Le Pichon, X., Francheteau, J., and Bonnin, J. 1973. Plate tectonics. *Developments in Geotectonics* 6. Elsevier Scientific, New York.
- Mason, T. R., and Von Brunn, V. 1977. 3-Gyr-old stromatolites from South Africa. *Nature* 266(5597):47-49.
- Matthes, G. H. 1951. Paradoxes of the Mississippi. *Scientific American* 184(4):18-23.
- McAlester, A. L. 1968. *The history of life*. Prentice-Hall, Englewood Cliffs, N.J.
- Menzies, R. J., George, R. Y., and Row, G. T. 1973. *Abyssal environment and ecology of the world oceans*. John Wiley & Sons, New York.
- Neufeld, B. R. 1975. Dinosaur tracks and giant men. *Origins* 2:64-76.
- Palmer, A. R. 1974. Search for the Cambrian world. *American Scientist* 62(2):216-224.
- Pearl, H. F. 1963. A re-evaluation of time-variations in two geochemical parameters of importance in the accuracy of radiocarbon ages greater than four millennia. M. A. thesis, Pacific Union College, June, 1963, Angwin, Calif.
- Pettijohn, F. J. 1975. *Sedimentary rocks*, 3d *ed.* Harper & Row, New York.
- Plass, G. N. 1956. Carbon dioxide and the climate. *American Scientist* 44:302-316.
- Porfir'ev, V. B. 1974. Inorganic origin of petroleum. *The American Association of Petroleum Geologists Bulletin* 58:3-33.
- Price, G. M. 1923. *The new geology*. Pacific Press Publishing Association, Mountain View, Calif.
- Ramm, B. 1956. *The Christian view of science and Scripture*. Wm. B. Eerdmans, Grand Rapids, Mich.
- Reiners, W. A. 1973. A summary of the world carbon cycle and recommendations for critical research. *In* G. M. Woodwell and E. V. Pecan, *eds.* 1973. *Carbon and the Biosphere*, pp. 368-382. United States Atomic Energy Commission.
- Roth, A. A. 1975. Old traditions on trial. *Origins* 2:100-103.
- _____. 1976. Geological changes and time. *Origins* 3:106-108.
- Rubey, W. W. 1951. Geologic history of sea water: an attempt to state the problem. *Geological society of America Bulletin* 62:1111-1148.
- Rupke, N. A. 1969. Aspects of bed thickness in some Eocene turbidite sequences, Spanish Pyrenees. *Journal of Geology* 77:482-484.
- SEPM. 1973. *Turbidites and deep water sedimentation*. Pacific Section Short Course, Anaheim, California.
- Simpson, G. G. 1963. Historical science. *In* C. C. Albritton, *ed.* 1963. *The Fabric of Geology*, pp. 24-48. Addison Wesley, Reading, Mass.
- Sloss, L. L., and Speed, R. C. 1974. Relationships of cratonic and continental-margin tectonic episodes. *Society of Economic Paleontologists and Mineralogists Special Publication* 22, pp. 98-119.
- Sohl, N. F. 1969. North American Cretaceous biotic provinces delineated by gastropods. *Proceedings of the North American Paleontological Convention, Part L*, pp. 1610-1637. Allen Press, Lawrence, Kans.
- Stanley, S. M. 1976. Fossil data and the Precambrian-Cambrian evolutionary transition. *American Journal of Science* 276:56-76.
- Stewart, I. C. F. 1976. Mantle plume separation and the expanding earth. *Journal of Geophysics* 46:505-511.
- Twidale, C. R. 1976. On the survival of paleoforms. *American Journal of Science* 276:77-95.
- Valentine, J. W. 1966. The present is the key to the present. *Journal of Geological Education* 14(2):59-60.
- _____. 1973. Phanerozoic taxonomic diversity: a test of alternate models. *Science* 180:1078-1079.
- Valentine, J. W., and Moores, E. M. 1972. Global tectonics and the fossil record. *Journal of Geology* 80:167-184.
- Walker, R. G. 1973. Mopping up the turbidite mess. *In* R. N. Ginsburg, *ed.* 1973. *Evolving Concepts in Sedimentology*, pp. 1-37. Johns Hopkins University Press, Baltimore.

- Whitcomb, J. C., and Morris, H. M. 1966. The Genesis flood. The Presbyterian and Reformed Publishing Company, Philadelphia.
- White, Ellen G. 1864. Spiritual gifts, vol. 3. Review and Herald, Washington, D.C.
- _____. 1878. Signs of the times, Jan. 3, Mountain View, Calif.
- _____. 1885. Review and herald, Feb. 24. Washington, D.C.
- _____. 1886. Manuscript, No. 62. Ellen G. White Trustees. Washington, D.C.
- _____. 1890. Patriarchs and prophets. Pacific Press Pub. Assn., Mountain View, Calif.
- _____. 1901. Signs of the times, April 10. Mountain View, Calif.
- _____. 1903. Education. Pacific Press Pub. Assn., Mountain View, Calif.
- _____. 1947. Story of redemption. Review and Herald Pub. Assn. Washington, D.C.
- Whittaker, R. H. 1970. Communities and ecosystems, Macmillan Co., New York.
- Wise, D. U. 1972. Freeboard of continents through time. Geological Society of America Memoir 132:87-100.

ILLUSTRATION CREDITS

- General geologic column. Fossil distribution based mainly on McAlester, 1968, and Harland *et al.*, 1967.
- Schematic diagram of part of surface of the earth, according to plate-tectonic theory (modified from J. F. Dewey and J. M. Bird, 1970, *Journal of Geophysical Research*, 75:2625-2647).
- A tentative Flood model. Proposed pre-Flood ecology. From Clark (1946). Reprinted by permission.

1

2

Archeology and the Recovery of Ancient History

I. The Birth of Biblical Archeology

WHEN Sir Isaac Newton wrote his *Chronology of Ancient Kingdoms* (published in 1728) his source material consisted of the Bible and the works of classical Greek and Roman writers. His conclusions drawn from the historical parts of the Bible have stood the test of time, and need only slight corrections even today, but his reconstruction of ancient history built on secular classical information was completely erroneous. According to Newton, Sesac, the Biblical Shishak who despoiled the Temple at Jerusalem in the time of Solomon's son Rehoboam, not only invaded Africa and Spain but crossed the Hellespont and also marched toward India, where he set up victory pillars on the river Ganges. None of all these campaigns except the one recorded in the Bible was undertaken by Shishak, as we know now. Newton had the great king Ramses living in the 9th century B.C. instead of the 13th, and had him *followed* by the builders of the great pyramids of Gizeh—Cheops, Chephren, and Mycerinus! We know today that these kings of the Fourth Dynasty of Egypt lived many centuries earlier, and that their pyramids were already famous monuments of their builders' glory in the time of Moses.

Bible commentators writing in the early 19th century, like Adam Clarke, were in the same predicament as Sir Isaac Newton. Wherever they tried to throw light on Biblical history of the pre-Persian period by ancient records, to place the Bible stories in their historical setting or against their backgrounds, they were on uncertain ground. Consequently, their explanations regarding historical events are usually misleading. The

¹Nichol, F. D. (1978). *The Seventh-day Adventist Bible Commentary : The Holy Bible with exegetical and expository comment*. Commentary Reference Series (Ge 1:1). Washington, D.C.: Review and Herald Publishing Association.

²Nichol, F. D. (1978). *The Seventh-day Adventist Bible Commentary : The Holy Bible with exegetical and expository comment*. Commentary Reference Series (Ge 1:1). Washington, D.C.: Review and Herald Publishing Association.

source material available to the student of ancient history in the early 19th century was obscure, vague, distorted, and erroneous, and contained great but unrecognizable blank spaces. Legendary figures were also presented as historical characters, so that it was impossible to reconstruct a true history of the ancient world. Even today, with our much greater knowledge of ancient history, we are still far removed from a correct understanding of all the interwoven happenings of the ancient nations, and are still unable to identify in all cases the figures and events described by the classical authors.

The unreliable nature of ancient source material as preserved by Greek and Roman writers was recognized through the discovery of contemporary evidence. When it was shown that much of the information of the ancient writers had been misunderstood, or was entirely false, a skepticism developed among scholars toward all ancient literature. For example, not only was Homer's *Iliad* declared to be a legend, but the very existence of the city of Troy was denied until Heinrich Schliemann excavated it and proved its existence.

This skepticism toward ancient writings, well founded in many cases, was then also extended to the writings of the Bible. Many people thought that the Biblical records about this world's ancient history, and the stories about the patriarchs, prophets, judges, and kings, were in most cases just as legendary as those of other ancient peoples which had come down to us through Greek and Latin writings. The most famous historians and theologians of the 19th century were the greatest doubters of the veracity of the stories of the Bible, and were among its most vigorous critics.

This attitude has greatly changed since the turn of the century. Much more respect is now shown toward the Old Testament, its narratives, and its teachings than was shown a few decades ago. The results of explorations in the Near East have done more than anything else to bring this about.

In the flood of light thrown by archeology upon the ancient civilizations the Old Testament stands forth not only as historically reliable but also as unique in scope, power, and lofty ideals in comparison with the best products of the ancient world. One authority on history, who does not himself accept the inspiration of the Bible, remarks on this fact: "It is possible to claim that, judged as historical material, the Old Testament stands higher today than when its text was protected with the sanctions of religion. ... "The historian ... should not judge it from the modern standpoint. He should not compare Genesis with Ranke, but with the product of Egypt and Assyria. Judged in the light of its own time the literature of the Jews is unique in scope as in power" (James T. Shotwell, *An Introduction to the History of History*, p. 80).

And he adds: "That the outlook [of "the Deuteronomist"] was really exalted—the finest in the Old Testament—any one will admit who reads the fifth to the eleventh chapters of Deuteronomy and then compares them with the rest of the world's literature before the climax of antique civilization" (*Ibid.*, p. 92).

Extensive surface explorations and numerous excavations of ancient buried sites have brought to light evidence that has not only resurrected ancient civilizations before our eyes but also allows us to reconstruct ancient history and place the Bible narratives in their true historical settings.

Keys were found that enabled modern scholars to decipher long-forgotten scripts like the Egyptian and Hittite hieroglyphs, the Sumerian and Babylonian cuneiform writing, or the alphabetic scripts of the ancient inhabitants of Palestine and Syria. Languages dead for thousands of years were resurrected, and their grammars and vocabularies established.

The sands of Egypt and the ruins of Western Asia revealed a wealth of literary material that had been hidden and preserved for millenniums. This enables the modern scholar to reconstruct much of the ancient history of those nations as well as their religion and culture. Cities like Lachish, Hazor, Megiddo, and Nineveh—to mention only a few—whose names appear in the Bible or other ancient sources, but whose location was entirely unknown, were rediscovered and excavated. Their ruined temples and palaces were uncovered, their schools, libraries, and tombs were found. They surrendered their long-kept secrets, and contributed to the fast-accumulating increase of knowledge about the ancient world, a world in which the men of the Bible lived and in which its sacred pages were produced. Millions of dollars have been spent to recover the ancient Orient, noble men of learning have given their health and in many cases their lives for this aim, and thousands of bulky volumes have been written to record the findings of the last one and a half centuries.

The providence of God can be seen in this development. How else can it be explained that all this priceless material was hidden from the view of men for so many centuries, when no one would have profited by it, and when it was not needed to establish the still unchallenged reliability of the Scriptures? Why is it that all this material came to light when it was most desperately needed to show the veracity of God's Word and the truth of sacred history? A watchful Eye had preserved it for the day when it would do its part to witness for the truth, and fulfill the prediction of Jesus Christ that when the living witnesses would cease to testify for Him and the truth, the very stones would cry out.

To introduce the history of this marvelous development of archeological endeavors in the various Bible lands, a few quotations from W. F. Albright, perhaps the foremost Orientalist of his day, may be given to show the tremendous profit Biblical studies have gained from archeological research, and the great change that has come over the scholarly world in their evaluation of the stories of the Bible. In 1935 he said:

“Archaeological research in Palestine and neighbouring lands during the past century has completely transformed our knowledge of the historical and literary background of the Bible. It no longer appears as an absolutely isolated monument of the past, as a phenomenon without relation to its environment. It now takes its place in a context which is becoming better known every year. Seen against the background of the ancient Near East, innumerable obscurities become clear, and we begin to comprehend the organic development of Hebrew society and culture. However, the uniqueness of the Bible, both as a masterpiece of literature and as a religious document, has not been lessened, and nothing tending to disturb the religious faith of Jew or Christian has been discovered”

(*The Archaeology of Palestine and the Bible*, p. 127).

The same author discusses at some length the discoveries that have disproved the dogmatic and often cynical claims of higher critics—like those of the school of Julius Wellhausen—that the Bible contains many legends, stories of folklore, and a mythology which has also been called “pious fraud.” This brings him to the following conclusion: “Conservative scholars are, we believe, entirely justified in their vigorous denunciation of all efforts to prove the existence of fraudulent invention and deliberate forgery in the Bible. They are equally within their rights in objecting most emphatically to the introduction of a spurious mythology and a thinly veiled paganism into the Bible” (*Ibid.*, p. 176).

Since these words were written, additional discoveries, some of them sensational, have attested the reliability of the Bible narratives and the accuracy of its text in many details. In reviewing this vast amount of new material Albright said:

“Archaeological discovery has been largely responsible for the recent revival of interest in biblical theology, because of the wealth of new material illustrating text and background of the Bible. . . . New archaeological material continues to pour in, compelling revision of all past approaches to both Old and

New Testament religion. It becomes clearer each day that this rediscovery of the Bible often leads to a new evaluation of biblical faith, which strikingly resembles the orthodoxy of an earlier day. Neither an academic scholasticism nor an irresponsible neo-orthodoxy must be allowed to divert our eyes from the living faith of the Bible”

(“The Bible After Twenty Years of Archaeology,” *Religion in Life*, vol. 21, Autumn, 1952, p. 550).

II. The Resurrection of Ancient Egypt

When we speak of Egypt there rises before our eyes a country where one of the oldest civilizations flourished, principally a long, narrow river valley which on the map looks like a serpent, averaging little more than 5 miles in width, but 500 miles long. This land, over which Joseph was once prime minister, and where Moses the lawgiver received his education, is a land of extremes. Ninety-nine per cent of its population live on about 4 per cent of its soil; the rest is desert. “Egypt is the gift of the Nile,” said Herodotus. The narrow fertile strip of land has always owed its life to this river, since the almost complete absence of rainfall has forced its population to depend on the yearly inundation of the Nile. The exceptionally dry climate is responsible for the preservation of many buildings and of a tremendous amount of perishable material that in other countries would have disintegrated long ago. Furthermore, no ancient nation possessed greater architects and builders than Egypt, and its fascinating monuments in stone, like the pyramids, obelisks, and temples, have survived the millenniums and are still eloquent witnesses to the remarkable engineering art of the ancient Egyptians.

The birth date of Biblical archeology in general and of Egyptian archeology in particular is the year 1798, when Napoleon on his military campaign to Egypt was accompanied by a large group of scholars, architects, and artists to whom the assignment was given to study and describe the remains of ancient Egypt. These men did a marvelous job and published 24 stately volumes as the result of their studies. These books are still valuable, because many monuments and inscriptions described by these French scholars have since been destroyed.

The greatest discovery, however, was made by the French Army in finding the now famous Rosetta stone in 1799, which became the key for deciphering the mysterious Egyptian hieroglyphic writing. This black basalt slab came with the spoils of war into the hands of the British, and has been since that time one of the most valuable objects in the fabulous collections of the British Museum in London. The trilingual inscription on the stone is repeated in Greek, demotic (cursive late Egyptian), and hieroglyphics (early picture writing). Scholars immediately tried, with the help of the readable Greek portion, to solve the riddle of the other two unknown scripts. The Swedish diplomat Akerblad made a successful beginning at deciphering the demotic portion in 1802, and the English physician Thomas Young was able to publish the correct reading of a few hieroglyphic signs in 1819, after many years of fruitless efforts. However, the complete decipherment was made by Jean François Champollion, a brilliant young Frenchman, in 1822.

Although Egyptian texts could be read from that time on, it took the combined efforts of many more scholars, in whose foremost ranks have stood Erman, Sethe, and Gardiner, to put the reconstruction of the ancient Egyptian language on a sound scientific basis. It was almost 70 years after Champollion’s pioneering work before the first satisfactory grammar of hieroglyphic Egyptian was published, and more than 100 years before an adequate Egyptian dictionary of 4,200 pages was produced. Since the Egyptian texts were written in a pictorial script with only consonants—no vowels—in hundreds of characters, the reading and interpretation of them is still a difficult task for every Egyptologist.

However, a vast amount of secular and religious literature and historical evidence has become available, which has placed the reconstruction of the political and religious history of ancient Egypt on a sound basis.

Hand in hand with this language research went the field work of the archeologist. This was carried out in the first half of the 19th century by recording expeditions which copied temple inscriptions, and described all the visible remains of ancient Egypt. For lack of space, only the most important one of these can be mentioned here, the great Prussian expedition of 1842-45 under Lepsius, which copied and described almost everything visible throughout Egypt. The result appeared then in 12 monumental volumes, which have hardly ever been surpassed in size, each measuring 30 by 24 inches when closed.

During the first half of the 19th century no systematic excavating was done. Only the natives dug up and sold profuse numbers of antiquities to the representatives of the great museums of the European nations, which during that time built up rich and fabulous collections. A change came through the appointment of Mariette to head the young Department of Antiquities of the Egyptian Government, when in search of Coptic manuscripts he had by a lucky stroke found the Serapeum, the temple where the sacred bulls were kept and buried. By perseverance, ruthlessness, and even the use of force he succeeded in stamping out illegal digging, and concentrated the control of all excavations in his own hands and those of his subordinates. During his time the fabulous treasures of ancient Egypt began to flow into the Cairo Museum, which by now has become the greatest collection of ancient Egyptian art in the world.

During Mariette's administration of 31 years a great discovery was made—the secret hiding place that had housed a great number of famous Pharaohs for more than 3,000 years. Their tombs had been robbed in ancient times, and a pious king had collected the mummies of his illustrious predecessors and deposited them in an artificial cave high up in the cliffs of the western desert near the Upper Egyptian capital of Thebes. From this cave came the body of that great war lord Thutmose III, who conquered all Palestine in the early 15th century B.C., and probably was the Pharaoh of the oppression of the Israelites. There was also Ramses II, the hero of the battle of Kadesh against the Hittites, the mummy of Ramses III, who became the savior of Egypt when the Sea peoples threatened to invade it in the 12th century. With them there were many other monarchs of name and fame. For many years the unwrapped and naked bodies of these men, before whom nations had trembled, and who had been worshiped as gods by their contemporaries, were exhibited in the Cairo Museum in showcases under glass, mute but impressive witnesses of the passing of worldly glory and power. They are more recently to be seen only in a special room of the museum.

When Gaston Maspero took over the administration of the department of antiquities in 1881 a new era began. Foreign scholars and institutions were invited to study the ancient remains of Egypt, and to carry out excavations. Since a fair share of the discovered objects was promised them as a reward for their efforts and expenses, a goodly number of scientific institutions, museums, and governments availed themselves of this opportunity. They did a tremendous amount of work to recover the ancient culture and history of Egypt as long as such a generous policy toward archeological work of foreign scholars continued in force.

No survey of Egyptian archeology would be complete without mentioning Sir Flinders Petrie, who began to work in the 1880's as a young man, and who became the father of scientific excavation by initiating careful methods of digging, recording, and preserving every find made. This indefatigable worker carried out excavations in Egypt and neighboring Palestine for almost 60 years, and published, alone or as a joint author, more than 80 books on archeological subjects.

Space does not permit listing the many expeditions that have worked in Egypt since the 1880's. The pyramids, more than 100 in number, have been carefully explored and surveyed, and their adjoining temples excavated. Thousands of royal and private tombs have been cleared, and the wealth of their contents has been published and brought into the art collections of the principal museums of Europe and America. The greatest and most sensational discovery in this respect was the finding of the unrobbed tomb of King Tutankhamen by Carter, in 1922. In his search for the spot, Carter had moved 70,000 tons of sand and rubble over a period of several years. This tomb with its thousands of objects—jewelry, furniture, tools, weapons, vessels, and clothing—and the many sarcophagi enclosing the innermost one of the pure gold, in which the king lay, did more to popularize Egyptology and to draw tourists to that mysterious land of hoary antiquity than all the combined efforts of the previous 100 years.

III. Egyptian Archeology and the Bible

The discoveries of the archeologist in Egypt have been as profitable to the student of the Bible as to the linguist, the historian, the lover of art, or the student of ancient religions. No other country has preserved more wall paintings, reliefs carved in stone or wood, more ancient objects of daily use like furniture, household utensils, musical instruments, tools of artisans and farmers, weapons of hunters and warriors, or more documents written on perishable material. Any Bible dictionary will reveal at a glance that no other land has furnished more illustrative material helpful in understanding the cultures and civilizations of Bible times. Through the color pictures and reliefs of ancient Egypt we know the dress and appearance of the Amorites, Canaanites, Philistines, and Hittites, and their special tools, weapons, and manner of warfare. The objects found in Egypt give us an idea of how the ancients furnished their homes, what kind of musical instruments were in use, and how they were played. In brief, a tremendous amount of light has been thrown on the many details of everyday living in Bible times through the marvelous discoveries made in Egypt during the last century and a half.

The following few examples of important discoveries made in Egypt have greatly helped us to understand better the stories of the Old Testament. From the 20th century B.C. dates the story of Sinuhe, an Egyptian court official who for reasons unknown to us fled of his life to the East, like Moses a few centuries later. After an adventurous journey he found a haven of refuge in Syria and lived there among the Canaanites for many years, as a refugee, until he was pardoned and allowed to return to Egypt. His description of the Canaan of his time, approximately a century before Abraham's migration to that country, is most interesting, and valuable for understanding the conditions the patriarchs met.

There was found in the tomb of an Egyptian nobleman from the time of Abraham a colored wall picture that depicts the arrival of 37 people—men, women, and children—from Palestine. This painting, so well preserved in spite of being almost 4,000 years old that it looks as if it had been painted a few years ago, gives us a good idea of Abraham's visit to Egypt described in Gen. 12.

Of an entirely different nature are several series of magical texts—written curses by which Egyptian kings sought to destroy their domestic and foreign enemies. Egypt was pre-eminently a land of magic in the ancient world, as we know from Moses' experience when he stood before Pharaoh and saw the divine miracles performed by him and Aaron imitated by the magicians of Egypt. Two series of such magical "execration texts" come from the patriarchal period. Their importance lies in the names of about 100 rulers of Canaanite cities. More than half of them can be identified as being Amorite, a fact that agrees well with the statements of the early books of the Bible that Palestine was in the hands of the Amorites in the time of the patriarchs (see Gen. 14:13; 15:16). Jerusalem is mentioned in those texts, and two kings of Jerusalem bearing good Amorite names are cursed among the enemies of Egypt. Some of the Biblical cities mentioned in these texts are Ashkelon, Accho, Aphekah, Lachish, Hazor, Shechem, and many others.

From the Egyptian Empire period, the time probably preceding and following the Exodus, we possess the descriptions of many military campaigns carried out in Palestine, like the famous account of the battle at Megiddo that took place perhaps 30 years before the Exodus. Besides annals, the Egyptian kings have left us lists containing hundreds of names of cities of Palestine and Syria conquered in their campaigns. For a better understanding of the geographical chapters of the book of Joshua these Egyptian contemporary lists are of great value. The last of these lists of conquered Palestinian cities is that carved on the temple walls at Karnak by King Shishak, who spoiled Jerusalem in the fifth year of Solomon's son Rehoboam (1 Kings 14:25, 26).

From the 14th century B.C. we possess a complete royal archive—a collection of official documents consisting of hundreds of letters received by the Egyptian kings Amenhotep III and IV from their Palestinian and Syrian vassals. These so-called Amarna Letters, found accidentally in 1887 by a peasant woman, proved to be one of the most sensational discoveries ever made in Egypt. They showed to the amazed world of scholarship that the diplomatic language of that time was Babylonian, and that the Babylonian cuneiform script (to be described later) was also used in correspondence between the Egyptian court and its vassal kings in Palestine and Syria. These letters prove the political weakness of Egypt in the 14th century B.C., during the time when, it is believed, the Israelites under Joshua and the elders took possession of the land of Canaan. Some of these letters come from the king of Jerusalem, Abdu-khepa—a Hittite—who pleads for weapons and soldiers from Egypt to defend his city from the invading Habiru, who have already taken over great parts of the country, and threaten to overrun the whole land. If the Habiru of these letters are the Hebrews, as most likely they are and as many scholars believe, we have in these Amarna Letters the story of the conquest of Canaan by the Hebrews as the Canaanites saw it. These documents are most important in helping us to understand better the conditions that existed in Palestine during the time of the conquest as described by Joshua.

Monuments in the form of high stone pillars were frequently erected by the Egyptian kings to commemorate their victories and political success. One of these so-called steles set up by Pharaoh Merneptah, probably in the period of the judges, mentions Israel as an (unsettled) people he had defeated during one of his Palestinian campaigns. Although this encounter of the Egyptian king with the Israelites is not mentioned in the Bible, this inscription is of importance for giving us the first extra-Biblical mention of Israel, and as witness for the existence of the Israelites in Palestine in the 13th century, which for many

critical scholars is hard to harmonize with their favored idea of placing the Exodus in the time of that same king. Those who cling to such a late date for the Exodus have even been forced to create the fanciful theory that not all the Israelites had gone down to Egypt under Jacob, and that Merneptah encountered those in Palestine who had remained behind. If the Biblical date is accepted that places the Exodus 480 years before Solomon (1 Kings 6:1), no such difficulties of interpretation are encountered, since Israel, in that case, had been in Canaan some 170 years by the time Merneptah came to the throne.

In this connection the discoveries of the earliest alphabetic inscriptions on the Sinai peninsula must be mentioned. They were found in 1904-5 by Sir Flinders Petrie in his explorations of the ancient Egyptian copper and turquoise mines in two valleys of western Sinai. Subsequent expeditions added to the number of inscriptions, and the combined studies of numerous scholars during the last 35 years have succeeded in deciphering and interpreting them.

The many hieroglyphic inscriptions left by the Egyptians in and near those mines reveal their history of exploitation in all details, and also the fact that Semites from Canaan were usually employed to work in the mines for the Egyptians. One of these Canaanites, while observing the Egyptians in their use of the cumbersome hieroglyphs for writing down records, made one of the greatest inventions of all time in the field of writing. In fact, he invented a system of writing that to the present day has scarcely been improved or simplified, the alphabet of about 25 characters.

The Egyptians and other peoples who possessed systems of writing needed hundreds, and even thousands, of different characters in order to express their ideas in writing. Symbols were used, each of which represented either a syllable (for example, *en, ne, in, ni, nen, nan*), or a complete idea such as the picture of an eye. Then this unknown Semite on Sinai came upon the idea of isolating singly the consonantal sounds by using one single character for each consonant and not connecting it with a vowel sound. This was a great improvement over all previous systems of writing, because only a small number of characters is needed to put in writing everything the human tongue can express.

It must be attributed to the providence of God that this invention was made in the neighborhood of the region where the first books of the Bible were written by Moses, and just before Moses' time. If the Bible had been written in the complicated systems of either the Egyptian hieroglyphs or the Babylonian cuneiform, which could be mastered only after many years of study, very few people would have had an opportunity to read the Bible for themselves. On the other hand, an alphabetic system of writing with only about 25 characters was so easy to learn that everyone could master it in a short time, and thus could read the Bible for himself. Through this marvelous invention it would not take long for most of the people of Israel to learn to read and write. To this conclusion we must come not only through the archeological evidence that the soil of Palestine has furnished us but also from some statements made in the Bible. The ability to read and write was evidently common in Transjordan in Gideon's time, as can be learned from the story narrated in Judges 8:14 (RSV). For Gideon captured a boy from Succoth who "wrote down for him the officials and elders of Succoth, seventy-seven men."

Scholars are not yet certain when this alphabetic system of writing was devised in the Sinai mining district—in the 16th or 19th century B.C.—although they agree that it was accomplished before Moses' day. The importance of this discovery to the spread of the knowledge of God's Word can be compared only with the invention of printing by

movable type prior to the Reformation, in the 15th century of the Christian Era. As this latter invention made it possible to distribute the Bible in an inexpensive form among all nations of the globe, the former made possible the writing of it in a form easily understandable to a man of meager education.

The discovery of the earliest alphabetic inscriptions at Sinai, which contain nothing more important than names and some dedicatory formulas, has done much to banish doubt that Moses could have written the books ascribed to him. Before that time critics claimed that the Hebrew Bible could not have been written in Moses' time, that no writing system for that language existed then.

Besides annals of wars with the Philistines and with Syrian and Canaanite peoples in the time of the judges, the Egyptians have left us ancient records of travel to and through Palestine. One narrates the journey of Wen-Amun, an Egyptian official, sent to the Phoenician port city of Byblos to buy cedarwood for a sacred Nile boat. The weakness of Egypt during that period is vividly illustrated by the hectic experiences the man had in Palestine and Syria, and the disrespectful way in which he was treated by the different rulers with whom he had to deal. The story of Wen-Amun's journey to Byblos and the letter describing the ambassador's trip through Palestine give us excellent illustrations of the Biblical statement that characterizes the period of the judges in the following words: "In those days there was no king in Israel: every man did that which was right in his own eyes" (Judges 21:25).

A satirical letter of the same period describes the trip of an Egyptian ambassador through Palestine on his way to a northern country. The letter tells us how the Egyptian official's horse was stolen one night, and about the numerous difficulties he encountered on account of the insecurity that reigned in the land.

A great amount of ancient "wisdom literature" has been preserved by the sands of Egypt. This particular kind of literature flourished in that country more than in any other, and the fame of it is reflected in the Bible when it is said that Solomon's wisdom surpassed even "all the wisdom of Egypt" (1 Kings 4:30). Many modern scholars compare the "wisdom literature" of the Old Testament (Job, Proverbs, and Ecclesiastes) with that of the Egyptians, and believe that the Old Testament writers borrowed from their Egyptian neighbors. However, there is no actual evidence that this was ever done. In the case of the "Instructions of Amenemope," which contain very close parallels to many passages in the Biblical book of Proverbs, it is even possible that Amenemope could have borrowed from Solomon's literary productions, because the language, vocabulary, word form, and style of writing used in the document containing Amenemope's instructions prove it to be the product of a later age than that of Solomon. Only those who believe with the higher critics that the book of Proverbs was not written by Solomon, but produced by some anonymous writer in much later times, can maintain that Proverbs has borrowed its material from the Egyptian Amenemope.

In 1904 a collection of well-preserved Aramaic papyri was found by natives on the Upper Egyptian Nile island of Elephantine. More of such documents came to light in an excavation during the years of 1906 and 1907 on the same island, and in 1947 others, found in the personal effects of C. E. Wilbour, a collector of Egyptian antiquities, were placed in the Brooklyn Museum. All these papyri, more than 100 in number, originated from a colony of Jewish soldiers who defended the south Egyptian border in the 5th century B.C., about the time of Ezra and Nehemiah.

These and similar documents found in other parts of Egypt from the same time inform us about the secular and religious conditions of the Jewish colonies in Egypt, and also about their history. These Aramaic documents, written in a language practically the same as that of the Aramaic portions of Ezra and Daniel, are also very important, for they demonstrate that similar ones in the books of Ezra and Esther are not forgeries (see *The Languages, Manuscripts, and Canon of the Old Testament*). Furthermore, they are our only extra-Biblical sources for the kind of calendar the Jews employed at that time, and the system according to which they counted the years of the reigns of the Persian kings. A study of this material helps to prove that the events described in Ezra 7 took place in the year 457 B.C., and not in 458, a date accepted by most modern historians and theologians. (For the Jewish calendar, see *Jewish Calendar in Egypt*; for the date of Ezra, see *Dates of Ezra and Nehemiah Established*); see also *Fall-to-Fall Jewish Reckoning Demonstrated*.

We see thus that the soil of Egypt has preserved material that sheds light on different Biblical periods, on the times of the patriarchs, the Exodus, the judges, the kings, and on the age after the Babylonian Exile. Merely a few examples have been given here, each corroborating only some little incident or a single text. But the accumulated evidence from Egypt, taken as a whole, vindicates the records of the Old Testament and attests the accuracy of its history.

In reviewing some of the abundant material archeology has provided the Old Testament scholar, one should not forget that Egypt's soil has preserved equally important material for the student of the New Testament. Innumerable Greek papyri that have helped us to understand better the language of the New Testament books have come to light. Since these discoveries do not fall within the scope of this article, they are not discussed further here.

IV. The Resurrection of Ancient Mesopotamia

Mesopotamia, meaning "the land between the rivers," possessed the oldest civilization in the world. The names of its two rivers, the Euphrates and the Tigris, are mentioned in connection with the description of Paradise (Gen. 2:14), and its plain of Shinar saw the building of the first city and tower (Gen. 11:4), the ancestor of so many Mesopotamian temple towers of later times. Archeology confirms the antiquity of the Mesopotamian culture.

In contrast with Egypt, the wide sweeping land of Mesopotamia has almost no monumental remains above ground. No temples or pyramids, no slender obelisks, no rock-cut tombs containing colorful mural paintings, entice the modern tourist to visit this land of ancient learning and culture. All the ancient cities are completely destroyed, and their palaces and temples have been covered by the debris and sand of many ages. Mighty capitals like Babylon and Nineveh, which were once the greatest cities of antiquity, were so thoroughly destroyed, and practically obliterated, that their very locations were forgotten. Indeed, 200 years ago serious people could raise the question whether these cities, of which the Bible spoke so much and which were mentioned and also described by classical authors, ever existed.

Nineveh may serve to show how these cities had been completely forgotten, even in ancient times. When Xenophon with his 10,000 Greeks passed the ruins of that city in 401 B.C., only about two centuries after its destruction, not a man of the region was able to give him the real name of the ancient city. Instead, he was told that the city had once

been called “Mespila” and had been a city of the Medes. Lucian, an Athenian writer of the 2d century of the Christian Era, exclaimed, “Nineveh is so thoroughly destroyed, that no one can say where it stood; no trace has been left of it.”

In the early 19th century it was natural for scholars to ask how it was possible that great cities could have disappeared entirely. Cities may be destroyed, they said, but not without leaving their traces. Rome, Athens, Thebes, Jerusalem, and other cities have been destroyed, but their sites were never lost and they were later rebuilt. But where is Nineveh, and where is great Babylon of old? The scholars who raised these and similar questions did not realize that the thorough destruction of these cities had come about as a fulfillment of prophecies made concerning them many centuries ago, prophecies that had predicted their ultimate doom and obliteration when they were still at the height of their glory and power (see, for example, Nahum 3 on Nineveh’s doom, and Isa. 13:19–22 on Babylon’s destruction).

Such is the condition of the country that has preserved under its debris and sand hundreds of thousands of written documents, untold numbers of sculptures, and the remains of numerous cities with their palaces, temples, schools, archives, and the dwellings of ordinary people. These remains have enabled the historian to reconstruct the long-lost history of famous nations of antiquity, allowed the linguist to resurrect languages and scripts that had been dead for almost 2,000 years, and furnished the Biblical scholar with evidence by which he can defend the truth of the historical narratives of his Bible and prove to a critical world that the old Book is true and reliable.

A word should be said here concerning the cuneiform tablets, on which the Mesopotamian texts are written. It is fortunate that, instead of perishable materials, clay tablets became the commonly used writing material in that land. They have not perished in the damp soil of Mesopotamia, because clay tablets, especially when burned, are practically indestructible. Writing was done by impressing the characters into the soft clay by means of a reed stylus. Since each impression had the form of a wedge, this kind of writing has been given the name cuneiform, or wedge-shaped, writing. The same cuneiform characters were cut in stone in the monumental inscriptions.

The decipherment of the ancient script of the Mesopotamian nations, the Babylonians, Assyrians, Sumerians, and others, is almost a miracle in itself. There was no Rosetta stone with a parallel text in a known script and language as a key, and the basic work of decipherment was done almost singlehandedly by one man. The earliest copies of cuneiform inscriptions had come to Europe in the 18th century from the ruins of Persepolis, one of the old Persian capitals. The first successful work in deciphering these inscriptions was done by the German classical scholar Grotefend, who made some brilliant guesses, and thus was able to read a few words and phrases of inscriptions in Old Persian. However, he did not succeed in going beyond these rudimentary successes. No real progress was made until some 40 years later, when Rawlinson, a young British officer of the East India Company, began to copy the great rock inscriptions at Behistun, in 1844.

Behistun lies on a mountain pass between Mesopotamia and Persia. There, King Darius I (the Great) had reliefs and long inscriptions carved in the rock, high above the road. Travelers had seen the pictures and texts for many centuries without knowing what they meant. One tradition had the reliefs depict the Biblical Samson and his foes, another interpreted it to be a teacher with his pupils. To Henry Rawlinson, a talented and

ambitious young man, the long and almost inaccessible texts presented a challenge. Working from a long ladder placed on a narrow rock ledge projecting from the perpendicular wall, he coolheadedly risked life and limb as he patiently copied these inscriptions. Then he engaged himself in the tedious work of deciphering the writing.

He recognized that the inscriptions consisted of one text in three different scripts and languages, Persian, Susian, and Babylonian, since he saw that the respective cuneiform signs of these scripts were the same as those found in the ruins of Persia, Susa, and Babylonia. Being endowed with a natural gift of readily grasping linguistic problems, and of making right combinations and guesses, he was able in a very short time to decipher the Persian script, the easiest of the three, since it is semialphabetic and has less than fifty characters. The decipherment of the other two scripts, each consisting of many hundreds of characters, was much more difficult, but Rawlinson was aided in his work by a great number of personal and geographical names, which were repeated in their respective languages in each of the three texts.

When Rawlinson published his results, he found help from some other scholars, like Edward Hincks, an Irish clergyman; Fox Talbot, one of the eminent inventors of photography; and Prof. J. Oppert, of Paris, who, accepting his decipherment as basically correct, refined and completed it in many details.

That the mysterious cuneiform script that had baffled generations was really deciphered seemed so incredible to the scholarly world in general that most men of name and fame—among them the great French Semitist, Ernest Renan—thought that Rawlinson and his collaborators had become victims of self-deception. Talbot, therefore, made the suggestion that the Royal Asiatic Society should send copies of a newly found and unknown cuneiform inscription to different cuneiform scholars for independent translations. This experiment was carried out in 1857. When the sealed envelopes of Rawlinson, Talbot, Hincks, and Oppert, containing each a translation of the text which had been sent to them, were broken open before a gathering of the most illustrious scholars of England it was found that the four translations agreed in all essentials, varying only in details as different translations of the same text always do. This experiment proved to all doubters that the decipherment of cuneiform script was a fact.

Much work has been done since that time. The work of Schrader, Delitzsch, and Landsberger and their schools has been especially fruitful. Differences in dialect have been discovered, new forms of scripts have been deciphered, and cuneiform grammars and dictionaries have been written. A multivolume Assyrian dictionary has been in process of production at the University of Chicago, with more than a dozen scholars working constantly for decades on this gigantic project.

Thus have been resurrected the languages and scripts of the ancient Sumerians, Babylonians, Assyrians, Hurrians, Elamites, Persians, and other smaller nations of Mesopotamia and its neighboring areas. A century of research and painstaking work has given us all the necessary tools for reading and understanding the legal, religious, historical, and literary works of those ancient nations, for reconstructing their history and religion, and has furnished valuable background material for Biblical studies and for defending many Old Testament narratives against the attacks of critics.

However, we must leave the linguist and review the work of the archeologist, who since the mid-19th century has provided us with the mass of material which the cuneiform scholar reads, translates, and interprets.

Travelers had occasionally picked up inscribed stones, bricks, or other antiquities from the ruin mounds of Mesopotamia, but the honor of excavating, as the first modern archeologist, one of Mesopotamia's ancient sites belongs to the French archeologist Paul Émile Botta. He began his excavations at Kouyunjik without knowing that this was the site of ancient Nineveh. This site, which lies near modern Mosul, across the Tigris, did not furnish the expected rewards, and Botta shifted his activities to Khorsabad, where he uncovered the palace of the Assyrian king Sargon.

Three years later Botta was joined in the field by Austen Henry Layard, who excavated Nimrud, the Biblical Calah. Layard, who, like Botta, found numerous stone reliefs, tremendous human-headed bulls, lions, and other sculptures, ivories, and other objects of value, knew how to popularize archeology. His versatile pen produced books like *Nineveh and Its Remains*, which became best sellers in their day, running through several editions and being translated into various modern languages. When Layard's artifacts reached London, where they became the nucleus of that famous collection of Assyrian antiquities which makes the British Museum one of the best of its kind, much enthusiasm was aroused for the archeology of Mesopotamia. Several more successful expeditions were sent out, and Layard and his successor, Hormuzd Rassam, excavated in a number of places, making one important discovery after another. The most sensational find consisted of the two great libraries of Nineveh, with more than 10,000 numbered clay tablets that had formed the libraries of King Ashurbanipal and the temple of Nabu.

One of the tablets found at that time caused a tremendous sensation 20 years later, in 1872, when the young Assyriologist George Smith saw that one of them contained the old Babylonian story of the Flood. Interest in Biblical archeology thus received one of its greatest boosts during the 19th century. The passage that caught his eye first and enabled him to identify the story is given in here in his own translation, which is now somewhat out of date:

“On the seventh day in the course of it
I sent forth a dove, and it left. The dove went and searched and
a resting place it did not find, and it returned.
I sent forth a swallow, and it left. The swallow went and searched and
a resting place it did not find, and it returned.
I sent forth a raven, and it left.
The raven went, and the corpses on the waters it saw, and
it did eat, it swam, and wandered away, and did not return.”

The news of this discovery ran like wildfire through the Christian world, and caused great enthusiasm and excitement. The *Daily Telegraph*, one of the great London newspapers, immediately offered to send Smith out on a new expedition to find the remaining part of the Flood tablet. Smith was fortunate enough to discover exactly what he was searching for, a “luck” that only few archeologists have been favored to share with him. After the first expedition a second and then a third one followed, but unfortunately for the young science of Assyriology, George Smith died on his third trip to Mesopotamia.

After an interruption in the excavation activities, in 1889 Americans entered the field. The University of Pennsylvania began to excavate the city of Nippur. This city was at one time a great cultural and economic center of the early Sumerians and Babylonians. Excavators had the good fortune to discover there a great number of tablets containing

texts of the ancient Sumerians, who preceded the Semites in Mesopotamia and were the real inventors of the earliest known form of writing. Also, an extensive collection of tablets was found, which came from a great business house of the time of the Persian kings Artaxerxes I and Darius II. Since many Jews had business relations with this firm, its “files” of business documents shed valuable light on postexilic Jewry in Babylonia.

Then came the Germans, who excavated, from 1899-1917, the great metropolis of ancient Babylon, the famous capital of Nebuchadnezzar and from 1903-13 the old Assyrian city of Assur. In these two sites a scientific method of excavation was developed which became the model of all later field work, and was followed after the first world war by all archeological expeditions.

However, the greatest increase in knowledge about the civilization and history of the ancient Mesopotamian nations has been gained through archeological work carried out between the two world wars. Space permits only brief discussion of the most important excavations at Ur, Erech, Nuzi, and Mari, although much valuable work was done at other sites—at Telloh by the French, at Kish by the British, at Khorsabad and two sites in the Diyala region by the Americans, besides smaller excavations at other places.

Ur of the Chaldees, the city where Abraham grew up as a youth (Gen. 11:31), became the center of activities of a joint British-American expedition, which worked there under the direction of Sir Leonard Woolley from 1922 to 1934. The great ziggurat, or temple tower, of Ur was cleared and thoroughly investigated. This edifice is still the best-preserved monumental building of Mesopotamia standing above ground. Temples, palaces, and living quarters of the population of Ur were uncovered. It was found that the Ur of Abraham’s time possessed a surprisingly high degree of civilization, and that its schools must have turned out first-class scholars.

The most sensational discovery made in Ur consisted in the finding of fabulously rich royal tombs of the early dynastic period. The objects found in gold, silver, and semiprecious stones almost equaled those that had come from the tomb of the Egyptian king Tutankhamen. Kings and queens had been buried with all their attendants, bodyguards, singers, their chariots and animals, their furniture and jewelry. Also, there came to light some of the most beautiful musical instruments, metalwork of superb craftsmanship, and inlaid work of high quality. These finds contradict eloquently those people who think that early man was primitive, and that it took him a long time to develop artistic and aesthetic capabilities.

It should be mentioned, however, that Woolley’s so-called Flood level, which he took to be proof of the Deluge, cannot be accepted as evidence for the Flood described in Genesis. This flood level was nothing more than the remains of a destructive local flood caused by the Euphrates and Tigris rivers in very ancient times. The local character of this flood is clearly proved by the fact that Woolley could not find this flood level in the neighboring site of el-Obeid, which lies on higher ground than Ur and was not affected by the catastrophe which destroyed Ur. Those who use the Ur excavations as proof for the Biblical Flood do not believe in the universal character of that event, but interpret it as a local affair affecting Mesopotamia only. Hence, we should refrain from using Woolley’s discoveries as proof of the Deluge.

Another site excavated between the two world wars which has contributed much to a better understanding of the earliest history of Mesopotamia is the city of Uruk, the Biblical Erech (Gen. 10:10). Numerous tablets from this place had been dug up illegally

by natives before excavations started, and had found their way to various museums in Europe and America. They had given the scholarly world a foretaste of the material that could be expected to come to light through a scientific exploration of this large site.

The Germans excavated the city from 1928 to 1939. They were especially successful in clarifying many architectural problems of the early Mesopotamian period, and had the good fortune to find a great number of cuneiform texts on clay tablets coming from the earliest literate period. These texts show clearly the stages in the development of the invention of the script. From a pure pictorial writing it went through semipictorial or semi-ideographic script to a syllabic form of writing in which many characters represented, not an object or an idea, but a sound.

Although this system of writing was less advanced than the alphabetic script, it was a great improvement over the simple pictorial method of writing. It has even one advantage over the early alphabetic systems of writing that had no characters to express vowels, since the syllabic script expressed both consonants and vowels. A word written, for example, by three cuneiform signs that can be translated as *har-ra-nu*, meaning “road,” allows us to approximate the ancient pronunciation *harranu*. But for a word like *d-r-k*, “road”; written in old Hebrew script without vowels, only the later traditional pronunciation of the Jewish scholars of the early Middle Ages gives us that word as *derek*. And we are by no means sure of its pronunciation in Old Testament times.

Of great importance to the student of the Bible and the ancient Orient is the excavation by the Americans (1925-31) of Nuzi, near the present oil city of Kirkuk. Here many texts came to light which, though written in a barbaric Babylonian, shed a great deal of light on the conditions that existed during the patriarchal age, in the first half of the second millennium B.C. With the exception of the famous law code of Hammurabi, found in the ruins of Biblical Shushan in 1901-2, Nuzi has given us more material that sheds light on the patriarchal age than any other city. A few of these illuminating Nuzi texts will be mentioned in the next section. Nuzi has also helped the historian resurrect the ancient Hurrians, whom we know in the Bible as the Horites. Their language, history, and culture have thus once more come to light.

As the last of the many important sites uncovered recently in Mesopotamia, the city of Mari must be mentioned. The site of this city, once a famous metropolis of the Amorites, was completely unknown. Archeologists had long searched in vain for the remains of this city, so frequently mentioned in ancient texts. W. F. Albright finally suggested Tell el-Hariri on the Middle Euphrates as its possible site, and was proved correct by a French expedition under M. Parrot which began excavating the place. A great palace of the time of Hammurabi (18th century B.C.) was uncovered, and an archive of many thousands of tablets was discovered. These documents came from a time when the city of Mari was in the hands of the Amorites, who used the Babylonian script and language for their correspondence and documents. The Mari texts, published intermittently in a number of volumes, have revolutionized our knowledge of the history of the Near East during the patriarchal age, and have required a later dating than was formerly supposed for Mesopotamian history preceding 1500 B.C.

An idea of the great number of documents excavated in Mesopotamia may be gathered from the fact that Layard and Rassam brought to the British Museum some 25,000 clay tablets from Nineveh, that De Sarzec's workers found 40,000 tablets in

Telloh in 1894, and that some 10,000 were discovered by the University of Pennsylvania expedition at Nippur. Many thousands of tablets also came to light in other excavations, carried out either by scientific organizations or haphazardly by natives. The known documents, which are spread over various museums of the Near East, Europe, and America, already number hundreds of thousands, and it is estimated that so far only about 10 per cent of the documents preserved in the soil of Mesopotamia have been discovered. The great majority of these tablets consist of uninteresting business documents, bills, invoices, notes, deeds, receipts, etc. But many of them contain extremely important historical, religious, or literary facts that provide us a vast amount of information with which to reconstruct the ancient history of the nations that used this script. The following section gives a survey of this wealth of material, in so far as it is of importance to the student of the Bible.

V. Mesopotamian Archeology and the Bible

One of the first fruits of the deciphering of cuneiform inscriptions by Rawlinson and his collaborators vindicated the Bible at a time when the higher critical schools of Europe apparently stood unchallenged. This was the discovery of the name of King Sargon of Assyria, a king then known only from the Bible (Isa. 20:1). Since none of the classical authors ever mentioned him, his very existence was referred to the realm of legend by some of the higher critics, though others thought that Sargon was only another name of Shalmaneser. Today Sargon, who claimed to have conquered Samaria and led its population into captivity, is a well-known figure of Assyrian history.

The discovery of the Babylonian story of the Flood by George Smith in 1872 and its impact on the religious world of that time has already been mentioned. However, the story itself should be described here in some detail because the Babylonian tradition of the Deluge resembles the Biblical record more closely than any other Flood story ever discovered.

The Babylonian Flood story is part of a great epic, in which the hero Gilgamesh is described as going in search of eternal life. During his quest for the "herb of life" he visited the nether world. There he met Utnapishtim, the Babylonian hero of the Flood, who told him the story of the Deluge and of his deliverance from it, and how he had been given a place among the gods.

Utnapishtim had been king of Shuruppak on the Euphrates when the gods decided to destroy all people as a punishment for their sins. Utnapishtim was advised to break down his house and build a ship, whose measurements were given to him, and to take all kinds of living creatures with him into it. He was, however, commanded to deceive his fellow men by telling them that the god Marduk had cursed him, and that he could live no longer in Marduk's territory, but must sail away from it. This point in the Babylonian story presents one of the greatest differences in comparison with the Biblical record. Instead of preaching to his fellow men during a period of many years, like Noah, the hero of the Babylonian tradition was used by the gods to deceive the antediluvians and thus make them easy victims of the coming destruction.

After Utnapishtim had built the ship and loaded it with provisions, animals, and his family, he handed its navigation over to the skipper Puzur-Amurri. Immediately the Flood began. The storm and flood were so tremendous that the gods themselves were alarmed by the catastrophe that they had brought on the world. "The gods were

frightened by the deluge, and shrinking back, they ascended to the heaven of Anu. The gods cowered like dogs, crouched against the outer wall.”

The great storm lasted for six days and six nights, and blotted out all living beings, who “returned to clay.” When Utnapishtim saw the immense destruction he knelt down and wept. After another day an island came into view, and the ship touched the peak of Mt. Nisir. Utnapishtim waited a week, and sent a dove out on the seventh day. The dove returned to him, since there was no resting place for it. Then he sent a swallow out with the same results. The third bird, a raven, did not return; then Utnapishtim, recognizing that the earth had dried up, left the ark and offered a sacrifice. The gods smelled the savor of the sacrifice with delight. Later they rewarded him with immortality and placed him among the gods.

The story shows remarkable similarities with the Bible records (as found in Genesis and some New Testament passages) in general points and even in details. The following similarities can be listed: (1) The hero of the Flood, Noah in the Bible, and Utnapishtim in the Babylonian story, received a divine communication concerning the threatened Flood. (2) The Deluge was a divine judgment because of sins committed. (3) The favored hero had to build a ship and forsake his possessions in order to save his life. (4) He received an order to bring animals and his family into the ship. (5) Measurements of the ship were given as well as instructions for building it. (6) The hero obeyed and received a message for his fellow citizens, although the content of the messages is very different. (7) A command was given to enter the ship and mention is made of one door. (8) A terrifying storm and rain caused the Deluge. (9) All human beings not in the ship were destroyed. (10) The ship touched a mountain after the waters had receded. (11) Birds were sent out to get evidence concerning the drying up of the earth. (12) After the disembarkation a sacrifice was offered. (13) The sacrifice was accepted favorably by the deity.

Differences between the Bible and the Babylonian narrative are also in evidence. The following chief differences are noticeable: (1) The Bible record speaks of one God of righteousness, whereas the Babylonian story mentions many gods quarreling among themselves. (2) In the Bible Noah is called “a preacher of righteousness” hence it can be assumed that he warned the people of the approaching deluge and thus gave them an opportunity to be saved; in the Babylonian account the gods had the people “deceived” in order to destroy them. (3) The covenant between God and Noah, which forms an important part of the Biblical story, is missing in the Babylonian tradition, and (4) many minor differences exist in details. For instance, the measurements of the ark are different, as well as the sequence of the birds sent out, the name of the landing place, the time elements given, and other features of the two stories.

The similarities between the two stories are nevertheless close enough to warrant the conclusion that there exists some relationship between them. Three main theories have been advanced to account for this obvious relationship: (1) Many modern scholars have claimed that the Jews took over the Babylonian story during the Exile, and adapted it to their own way of thinking, a theory wholly unacceptable to those who believe that Moses wrote the book of Genesis under divine inspiration about a thousand years before the Exile. (2) A few conservative scholars have suggested as a second alternative that the Babylonians might have taken over the story from the Hebrews. However, since the most ancient extant copies of the Gilgamesh epic antedate the Mosaic period by several centuries, this theory cannot be correct. (3) The third view, undoubtedly the correct

solution of the problem, holds that both stories went back ultimately to the same source. The story of a universal Flood with the deliverance of one family lived on for many generations. When the Babylonians put it into writing the story had suffered corruption through its oral transmission and the polytheistic influence of Babylonian paganism. The Biblical story, on the other hand, was written down under inspiration, and shows therefore the pure and elevated spirit of a monotheistic author.

These facts account for most of the similarities and differences observed in the two stories. Inasmuch as the earliest history after the Flood was enacted near or in Mesopotamia, its inhabitants had a better knowledge of the Flood and preserved it in a comparatively purer form than the nations living in faraway countries. Another element was the fact that it was put into writing earlier in Mesopotamia than anywhere else. However, it is not superior but much inferior to the Bible story, as is evident to any one who reads both stories and compares them. The moral force of the Biblical story is almost completely missing in the Babylonian tradition. The Bible gives us history; the Babylonians changed a historical event into a legend.

In the winter of 1901-2 a French expedition working in the ruins of Biblical Shushan, where the Jewish girl Esther became queen of the Persian Empire (Esther 2:5-8 etc.), discovered an eighth-foot pillar of black diorite broken in three pieces. The whole monument was covered with 39 columns of inscriptions containing a total of 3,624 lines of laws. They had been collected and publicly displayed on this stone pillar by Hammurabi, a great Amorite king of the Babylonian Empire during the 18th century B.C., the time of the patriarchs. The discovery of this ancient collection of civil laws caused a great sensation in the theological world. The judicial system found in the Pentateuch had been assailed, since it was thought that in the time of Moses such a highly developed system could not have existed. But the law code of Hammurabi revealed that Mesopotamia possessed similar codes even before the time of Moses, laws which ultimately go back to the divine Lawgiver, although they had degenerated in the hand of pagan idolaters, as a careful comparison between the Biblical and Mesopotamian systems shows.

The law code of Hammurabi revealed furthermore that the way of life reflected in the patriarchal stories of the Bible agrees in many details with the conditions existing in the ancient Near East during the period of the patriarchs. It seems strange to us today that Sarah gave her slave girl to Abraham in order to obtain through a servant the offspring that God seemed to deny her by natural means (Gen. 16:1-3). But what she did was in complete agreement with common practices existing in her native country, where such a procedure was entirely legal, and the rights and duties of a maidservant elevated to the rank of concubine, and of the children borne by her were regulated by law (see Code of Hammurabi, secs. 144, 145, 170, 171). That Sarah acted within her legal rights when she punished Hagar for becoming overbearing when she saw that she would bear a child to her master (Gen. 16:4-6) is also proved by the provisions of section 146 of that famous law code of Hammurabi. Many more examples could be quoted to show how this exceptionally important discovery has shed light on the patriarchal period and has shown that the Biblical stories are trustworthy. This law code was the first great witness resurrected from the soil of Mesopotamia that revealed that the patriarchs had not been legendary figures but men of flesh and blood, and that the milieu in which they had

lived—the had lived—the setting as given in the Biblical description—agreed completely with the now known facts.

When the Assyriologist Alfred Jeremias, a higher critic himself, studied the legal provisions of the Code of Hammurabi and compared them with the customs reflected in the patriarchal stories of the Bible, he came to the following remarkable conclusion:

“We have shown how the *milieu* [the setting] of the stories of the Patriarchs agrees in every detail with the circumstances of Ancient-Oriental civilisation of the period in question, as borne witness to by the monuments. . . . Well-hausen worked out from the opinion that the stories of the Patriarchs are historically impossible. It is now proved that they are possible. If Abraham lived at all, it could only have been in surroundings and under conditions such as the Bible describes. Historical research must be content with this. And Wellhausen may be reminded of his own words (*Komposition des Hexateuch* 346): ‘If it (the Israelite tradition) were only possible, it would be folly to prefer any other possibility’” (*The Old Testament in the Light of the Ancient East* [New York, 1911], vol. 2, p. 45).

Much more evidence in the same sphere came to light during the above-mentioned excavations of Nuzi. One document declares that a man sold his future inheritance for three sheep to help him over a time of need. Who is not immediately reminded of Esau’s selling his birthright for a dish of red pottage (Gen. 25:33)? Other Nuzi texts present close parallels to Jacob’s experiences in Haran, and his relationship with Laban, his father-in-law; they also show that every daughter, like Leah and Rachel, received a handmaid as part of her dowry from her father when she was given in marriage (ch. 29:24, 29). The Nuzi texts have in this way furnished much material that helps us to understand the somewhat strange customs of that time, and to see clearly that the patriarchal stories are based on facts, and not on foggy tradition or legends.

W. F. Albright, in referring to this and other related archeological and textual material that has shed so much light on the patriarchal period, made the following significant statement:

“Eminent names among scholars can be cited for regarding every item of Gen. 11–50 as reflecting late invention, or at least retrojection of events and conditions under the Monarchy into the remote past, about which nothing was thought to have been really known to the writers of later days.

“The archaeological discoveries of the past generation have changed all this. Aside from a few die-hards among older scholars, there is scarcely a single Biblical historian who has not been impressed by the rapid accumulation of data supporting the substantial historicity of patriarchal tradition” (“The Biblical Period” in *The Jews; Their History, Culture, and Religion*, ed., by Louis Finkelstein [New York, 1949], p. 3).

Another period that has richly gained in clarity by the discoveries made in Mesopotamia is the time of the kings of Judah and Israel. The first king of Israel mentioned in an Assyrian inscription is Ahab, a contemporary of the prophet Elijah. He is described by Shalmaneser III as having fought against the Assyrian king in the battle at Qarqar with 2,000 chariots and 10,000 soldiers, more than any of the other kings with whom Ahab was allied at that time. Jehu, another king of Israel, is later described by the same Assyrian king as having paid tribute. Other Israelite kings mentioned in Assyrian inscriptions are Jehoash, Menahem, Pekah, and Hoshea. Under the last-mentioned king Samaria was conquered and its population taken captive. This event also is described in some detail by an Assyrian king in his annals and monumental inscriptions.

Kings of Judah who appear in Assyrian inscriptions are Joash, Azariah, Hezekiah, and Manasseh. Sennacherib of Assyria has left us his own account of his siege of Jerusalem in 701 B.C. While boasting that he had shut up the king of Judah (Hezekiah) in his capital city like a bird in a cage, he dared not claim the capture of Jerusalem or the king. Later, invading Judah again, his army suffered a humiliating catastrophe (mentioned three times in the Old Testament (2 Kings 19:35; 2 Chron. 32:21; Isa. 37:36)).

Sennacherib praised himself for his military achievements, but he would naturally pass over in silence the loss of his army in Palestine.

The Babylonian captivity of the young king Jehoiachin is attested by a number of apparently uninteresting receipts from Babylon, the capital city of Nebuchadnezzar's empire. These tablets simply state that the king and his sons received their rations of oil from the palace storehouses. Many other texts throw light on the events of the period during which the Jews were in captivity, and after the restoration.

During the last world war there was found in the Berlin Museum a tablet that on examination proved to mention Mordecai, a high dignitary of Xerxes' court in Susa, the Biblical Shushan. It became evident that the book of Esther contains a story that is not fictitious but deals with historical facts and persons.

Even uninteresting private business documents throw light on in the Biblical stories. From Nippur has come a collection of the accounting records of a great business concern, that of Murashu Sons, showing that the firm had dealt widely with Jews. Among them appear many who had come to honor and wealth under the rule of the Persian kings, illustrating clearly the correctness of the Biblical record that gives the same picture concerning the wealthy and honored position of many Jews after the Exile.

The afore-mentioned examples of discoveries shedding light on the Bible are only fragments of the mass of material from Mesopotamia that make the Bible live again. Almost every Assyrian, Babylonian, or Persian ruler mentioned in the Bible has been rediscovered in contemporary documents, so that we are well informed concerning their history. We have thus inscriptions of kings like Shalmaneser and Tilgath-pileser, Nebuchadnezzar and the long-lost Belshazzar, Cyrus and Darius the Great, Xerxes, and many others. Even officials whose names are given in the Bible, such as Nebuzar-adan (2 Kings 25:8) or Nergal-sharezer (Jer. 39:3), are met in the official documents of their time.

VI. The Resurrection of Ancient Palestine

Palestine long remained untouched. Not before the last third of the 19th century was the spade set in the ruined hills of Palestine. Why did archeologists wait more than a lifetime after Egypt and Mesopotamia began to give up their ancient treasures? Why did they hesitate to dig in the country of the patriarchs and prophets, the homeland of David, Solomon, and Christ? Should Palestine not have been considered the most fertile field for the Biblical archeologist? Could it not be expected to furnish valuable material by which the Bible stories would be corroborated, and the written Word of God confirmed?

The reasons for the reluctance of early archeologists to dig in Palestine are easy to find. Palestine had never been the center of a great and wealthy empire, and had possessed neither monumental buildings—with the exception of the thoroughly destroyed Temple at Jerusalem—nor magnificent cities like Thebes, Memphis, Nineveh, Babylon, Susa, Athens, or Rome. With the exception of a short time under the reign of Solomon, the country had been poor, and had usually been divided among different peoples. It had seen more wars and destructions of its cities than any other country of its size, and its humid climate allowed little hope that any perishable material could have survived for millenniums the destructive forces of nature.

Another cause of the comparatively great archeological poverty of Palestine was the Jewish religion. In the surrounding countries kings erected monuments of many kinds to perpetuate their name and fame. Such monuments could not be expected in the land of the Israelites, who were forbidden by law to make images and erect monuments (Ex.

20:4; Lev. 26:1; Deut. 7:5, margin; 16:22), and were admonished to destroy such objects wherever they would be found. Although it can be assumed that many disloyal rulers of Israel built such monuments to their honor, it is equally likely that other kings, such as Josiah, and Hezekiah, or the governor Nehemiah, destroyed all monuments that their predecessors had erected. At least this would account for the fact that the only commemorative stone so far found with an old Hebrew inscription, is the Moabite Mesha stone, erected by a heathen king.

Because of these reasons it is understandable that the excavators had small hopes of making spectacular discoveries in Palestine, and the scores of excavations carried out in this land have completely confirmed these fears of the archeologists. Palestine has not produced treasures like those from the tombs of Tutankhamen or the kings of Ur, nor has it rewarded the efforts of the excavators with inscriptions comparable in number to those that Egypt or Mesopotamia has provided. However, even Palestine can provide sensational discoveries. That has finally been shown by the recent finding of 2,000-year-old Biblical and other manuscripts, as well as inscribed copper plates, in caves of the Judean desert. If these really phenomenal findings are only a sample of what the soil and caves of Palestine may still preserve for us, great things can be expected.

For many centuries the interest of Christians had entered on the sacred places of tradition, which found their most monumental expressions in the Christian churches like the Church of the Nativity at Bethlehem and the Church of the Holy Sepulchre in Jerusalem. But no trace of any scientific interest in the ancient sites can be found among the crusaders or Christian pilgrims who traveled to and through Palestine for many centuries. A scientific exploration of the country was not carried out until Edward Robinson, an American professor, traveled through Palestine in 1838 and identified numerous places with those known from the Old and New Testaments, laying a sound and solid foundation for the great topographical survey that was carried out under the auspices of the Palestine Exploration Fund by Conder and Kitchener.

A few important discoveries were made before the actual beginning of excavations. The famous Mesha stone was found in the land of Moab by the German missionary Klein in 1868. However, before it came into the hands of scholars, the suspicious Arabs broke the monument into many pieces by heating it on a fire and then pouring cold water over the hot stone. Fortunately an imperfect copy had been made before this. Afterward the French scholar Clermont-Ganneau was able to salvage many of the pieces and reconstruct the basalt slab, which is now in the Louvre in Paris. This monument contains a victory text of the Moabite king Mesha in 34 lines of the old pre-exilic Hebrew script, still the longest known inscription of its kind.

Another important chance find was made in 1880, when some Arab boys discovered a Hebrew inscription on the wall of a 1,750-foot tunnel that Hezekiah's men had bored through the rock in the 8th century B.C. in order to bring the water of the Siloah (Siloam) spring into the city. This inscription, describing the construction procedures, had been carved in the wall by the tunnel diggers. It has since been cut out, and is now in a museum in Istanbul.

The Palestine Exploration Fund in starting scientific excavations naturally began its work in Jerusalem, the holy city of three religions. However, it was soon realized that there is no more thankless job than excavating in Jerusalem for archeological material. That city has in the past been so thoroughly and repeatedly destroyed and rebuilt that

there are very few objects of value left in its debris. Also its ancient architectural remains, wherever they are uncovered, are so disturbed by later building activities that it is difficult for the archeologist to arrive at sound conclusions in their interpretation. Nevertheless, the archeologist has been able by patiently collecting every bit of evidence to clear up many of the problems connected with the history of this city, and approximately to establish the location of its ancient walls, although few objects have been found in Jerusalem that merit a place in a museum.

In 1890 Flinders Petrie excavated Tell el-Hesi in southwestern Judea, thinking that the site was that of ancient Lanchish. Although the place has not been definitely identified, there is good reason to believe that it is the site of ancient Eglon. As in so many other Palestinian sites the results were disappointing, and after a season's work Petrie went back to Egypt, where excavations were so much more rewarding. His work on Tell el-Hesi was nevertheless extremely important, because he developed a system by which an archeologist is able to date levels of ancient ruins even if no inscriptions are available. Every site contains a great amount of broken pottery, since all Orientals, ancient and modern, use pottery for a multiplicity of purposes. Pottery breaks easily, and broken pieces of pottery are usually discarded. These practically indestructible fragments can be very instructive to the trained archeologist, for the shape of pottery vessels changed frequently, as well as the texture, the manufacturing techniques, and artistic designs. Petrie saw that the pieces of broken pottery differed in each level, and by carefully registering and comparing each piece with others, made a beginning in the development of the science of pottery chronology. This method has been so much refined since Petrie's ingenious start, in 1890, that it has become a reliable tool in the hands of the archeologist for dating ancient remains.

It may be helpful to explain in this connection some terms used in discussing Palestinian archeology, like *tell* and "level" of occupation. A *tell* is a mound that can easily be recognized by its form as an artificial elevation in the Near Eastern landscape. It contains the ruins of an ancient city covered by the sand and rubbish of centuries. The ancients usually built their cities on some natural elevation, and the successive ruins as well as accumulated refuse added to its height. Whenever a dilapidated house needed rebuilding it was torn down, and the sun-dried brick of the walls merely packed down and leveled off. Then the new house was built on the foundations of the old. When a city was destroyed by one of the frequently occurring wars, the same thing was done with regard to the whole city. The ruins were leveled off so that the whole area rose for several feet and the new city was built on top of the packed-down ruins of the former city. A city grew in height therefore with each rebuilding, sometimes a considerable increase in height, in view of the numerous destructions and rebuildings some cities experienced.

The excavator can recognize each period of the city's history by the separate levels, or strata, which he uncovers, and which all differ from the preceding or succeeding ones. Such a *tell* can be compared to a cake consisting of several layers. The topmost layer is the last one, the lowest the earliest of occupation. The archeologist will therefore find first the last level of occupation, which may consist of ruins of an Arab village. After removing them he may come to the remains of an earlier city that flourished in Byzantine times, then to one of the still earlier Roman period, etc. Only after carefully removing all the later levels in which the archeologist may not be interested, but which he has to study and record as any earlier ones for the sake of science, does he reach the levels of Old

Testament times. In Megiddo, for example, altogether 20 different levels were found going back to a very early period of Palestine's history, and the mound of the ancient city of Beth-shan was found to contain 18 levels, which had a total thickness of 71.5 feet.

Space does not allow a discussion of the various expeditions in Palestine before the first world war, and only a few of the most important excavations will be mentioned here. It was a time of experimentation, when archeologists learned by trial and error. Most of the conclusions reached during those excavations when Palestinian archeology was in its infancy have had to be revised since that time. However, important discoveries were made in several places, as, for example, in the ruins of Gezer, the city that Solomon received as a dowry from his Egyptian father-in-law; also in the city of Taanach, where the archives of the local Canaanite ruler were found, consisting of a number of cuneiform tablets. The work at Megiddo produced much valuable information, and especially that at Samaria, which was excavated very carefully and methodically by Reisner and Fisher, who brought to the task their rich experience as Egyptian archeologists. Their work was rewarded with some 60 inscribed potsherds, or pottery fragments. Because papyrus from Egypt was too expensive, pieces of broken pottery, always plentiful, were used as writing material for short notes, memos, receipts, and the like. These 60 potsherds, from the government files, were records of taxes received in oil and wine in the time of the Israelite kings.

When Palestine was made a British mandate after the first world war, the time seemed to be opportune for greater work. The American, British, and French schools of archeology became very active, but also a number of other institutions worked on a large scale, as, for instance, the Oriental Institute of the University of Chicago, and the Museum of the University of Pennsylvania. The last-mentioned institution started a long series of important and successful Palestinian "digs" by excavating Beth-shan impressive mound in the upper Jordan valley. In this city, which had been an Egyptian stronghold and garrison before and after the Exodus, a number of Egyptian monuments were discovered, as well as Egyptian and Canaanite temple ruins.

Megiddo, the strong Canaanite fortress in the plain of Esdraelon, was excavated anew by the University of Chicago. Among other valuable material there was found the fragment of a victory monument that Pharaoh Shishak had erected in that city after his successful Palestinian campaign in the fifth year of King Rehoboam (1 Kings 14:25, 26). Important discoveries were the residences of the commander of the local garrison and the district governor, and extensive stables formerly assigned to Solomon, but now dated later, probably to Ahab's time. Megiddo was a well-planned garrison city for the royal chariotry, with space for about 500 horses. This reminds us of 1 Kings 9:15–19, where Megiddo is mentioned among the cities that Solomon built—some of which were built for his horsemen and chariots. From deeper, that is, Canaanite, levels the excavators brought to light a hoard of artistically carved ivory plaques, also the gold and silver treasure of Canaanite prince, which, however, cannot compare with the treasures that the Egyptian archeologists are accustomed to find.

An important excavation was carried on for four seasons by Albright and Kyle at Tell Beit Mirsim, probably the ancient Kirjath-sepher. The site did not yield many important museum pieces, but because of its well-preserved sequence of strata, or successive levels, and because of its being excavated under the direction of the best Palestinian archeologist, this became the model of Palestinian excavations.

Many other sites were excavated during the years between the two world wars, of which the following can merely be mentioned, together with the most important discoveries made on each site. Beth-zur furnished proof that in the early postexilic period Greek silver coins had been in use. It thereby contradicted a late date assigned by the higher critics to the book of Ezra, because that book presupposes the use of such coins even before the time of Darius I, when silver coins were thought to have been introduced for the first time (see Ezra 2:69). Beth-shemesh brought to light some very early alphabetic texts, which have added weight to the cumulative evidence that writing was fairly widely practiced in the second millennium B.C. King Saul's small castle was excavated at Gibeah; also the city of Shiloh, where the tabernacle had been during the period of the judges. Other sites contributing to the increase of our knowledge of the history of the Canaanites and Israelites were Bethel, et-Tell (identified, probably erroneously, with Ai), Tell en-Nasbeh (which is perhaps Mizpah), and Shechem. Further, in southwestern Palestine important material was found which throws light on the culture of the Philistines, Israel's traditional enemies. Among the sites of special interest to the student of the Bible is Jericho, which for many years ranked very high in general interest. In 1930 John Garstang reopened earlier excavations there made by Sellin and Watzinger (1907-09) and found, on a level that he dated to Joshua's time, a burned city with fallen walls on whose top houses had stood (cf. Joshua 2:15)—a unique feature. But his date for the fall of these walls (c. 1400 B.C.) has been shifted several centuries earlier by the findings of an expedition of the 1950's directed by Dr. Kathleen M. Kenyon. This expedition did, however, uncover a portion of a later house wall and floor, with an oven and a small jug, which appeared to be "part of the kitchen of a Canaanite woman, who may have dropped the juglet beside the oven and fled at the sound of the trumpets of Joshua's men" (Kathleen M. Kenyon, *Digging Up Jericho*, p. 263).

Apparently all of the city of that period (and parts of even earlier levels) were eroded away. This is not surprising. The crumbling mud-brick structures were not preserved by being built upon by later inhabitants, because the city was unoccupied for centuries after Joshua's time (Joshua 6:21). Hence they would be completely washed away by the heavy winter rains. However, the one house, and pottery finds in the tombs outside the city, indicate that Jericho was inhabited in the 14th century.

Tell el-Kheleifeh, the city or a suburb of Ezion-geber, on the Gulf of Aqaba, was excavated by Nelson Glueck from 1937 to 1940. This place is mentioned in the Bible as one of the places the Israelites passed during their desert wanderings (Deut. 2:8), and as Solomon's main port of departure for his Ophir expeditions (1 Kings 9:26-28). Glueck, who had previously found Solomon's rich copper mines in Edom, was greatly surprised when the ruins of Ezion-geber showed that it had been a great commercial center of Solomon's time, with a fortified building in a large enclosure. The building, at first thought to be a smelter, is now identified as a storehouse or a granary. From this place, apparently, sailed the "ships of Tarshish," or "refinery fleet" (see Gen. 10:4). The proverbial wealth of Solomon (1 Kings 7:46, 47; 10:21, 27) can be understood better since this ruined commercial center has been excavated.

Another important excavation was carried out by a joint British-American expedition at Samaria. The archeologists had the great satisfaction of discovering many fragments of beautifully carved ivory plaques originating from Ahab's ivory palace (1 Kings 22:39). They allow us for the first time to evaluate the artistic achievements of Israel in a period

not far removed from Solomon's Temple building. Thus we can get some idea of the kind of decorations that beautified Solomon's Temple and palaces.

Lachish, one of the fortress cities of southern Palestine, has been an archeologist's mine. Albright suggested identifying Tell ed-Duweir with this long-lost city, an identification that was completely verified by subsequent excavations, which began in 1932. The ruins of this city provided not only some of the earliest specimens of alphabetic Hebrew writing but also the 21 now-famous Lachish Letters of the time of Jeremiah, containing messages sent by an army captain to his commanding officer at Lachish. Some of these letters, coming from the very last days of Judah's existence, before Jerusalem fell to Nebuchadnezzar's forces, give us a glimpse of the conditions of those tragic days, and confirm the book of Jeremiah in many places.

Finally, brief mention must be made of the caves of the dry Judean desert that have preserved for us a number of Old Testament leather scrolls, and other manuscripts of the pre- and post-Christian Era. In the first sensational discovery of these documents in 1947 we have thus suddenly obtained texts that are a thousand years older than the oldest Hebrew texts before known. Since these discoveries fall in the purview of another article, "The Languages, Manuscripts, and Canon of the Old Testament," in this volume, the mere mention of this most sensational find must suffice here.

Since about 1950 the excavation of Biblical cities has accelerated sharply. Numerous archeological campaigns at Hazor, Shechem, Gibeon, Ashdod, Beer-sheba, Arad, and Caesarea have produced remarkable results. In Jerusalem large-scale excavations have uncovered parts of the wall of the Jebusite city taken by David, a fragment of the western wall of the time of the Hebrew kings—giving us the first indication of the size of the Old Testament city—and major structures of Christ's day destroyed by Titus in his conquest of the city in A.D. 70. East of the Jordan and the Dead Sea may be mentioned the excavation of several Edomite sites, as well as *Bab edh-Dhra*, which may be in the area of "the cities of the plain . . . in which Lot dwelt" (Gen. 19:29). Several seasons of excavation at Heshbon, the capital city of King Sihon of the Amorites, have uncovered remains from the 12th century B.C. to the 14th century A.D., including what may be one of the "pools in Heshbon" mentioned in the Song of Songs (ch. 7:4).

VII. Palestinian Archeology and the Bible

The student of the Bible has profited immensely from the results of Palestinian archeology. The ruins of Canaanite and Hebrew cities and villages have preserved remains of city walls, palaces, public buildings, and private houses, allowing us to see the different levels of architectural attainment reached in the various periods of Palestine's checkered history. We can study the systems of fortifications, the sanitary conditions in homes and towns, and find out how the people lived and worked, and how they were buried. Thousands of objects found in Palestine—weapons and tools; vessels of clay, metal, or stone; furniture; and jewelry—all interpret for us the daily life of the ancient Hebrews, Philistines, and Canaanites, and add to our knowledge of Bible times.

The archeological findings made in Palestine have also shown that the art of writing was widespread, not only in the later periods of Israel's history but already in the time of the patriarchs and judges. In the earlier periods most writing was done on cuneiform tablets, as the hundreds of Amarna Letters show. Most of these were written in Palestine in the 14th century B.C. and sent to Egypt, where they were found in the royal archives. Many tablets found in Palestine—in Gezer, Tell el-Hesi, Taanach, Shechem, and

Samaria—belong to the same category of texts as the Amarna Letters, and confirm the fact that the knowledge of writing was widespread. However, numerous texts are found that are written in an early form of alphabetic script, very similar to that invented in the copper mines of Sinai. This shows that the people of Palestine began to experiment with this simple script, so much more convenient than the complicated cuneiform system, and to develop it until it could freely be used for every writing purpose. Such texts, written in an early semipictorial alphabetic script, have come to light at Lachish, Tel el-Hesi, Bethshemesh, Shemesh, Megiddo, Gezer, and Tell el-‘Ajjûl. These writings eliminate the argument used so much by higher critics of former days that the Bible, written in alphabetic Hebrew, could not have been produced before the time of the divided kingdom or the Exile, because they believed that the earlier Hebrews knew no alphabetic writing. No informed scholar uses this argument anymore.

Palestine’s ruins have also provided much material that throws light on the religious practices of the ancient Canaanites. Temples have been uncovered in several places, of which those at Megiddo, Beth-shan, and Lachish are the most important. In Gezer an elaborate high place was found, with an oracle cave under it. The row of sacred pillars, objects of worship which the Israelites were commanded to destroy, the altars, and all the other necessary paraphernalia of Canaanite places of worship are highly instructive. So are also private altars, offering censers, remains of sacrifices, and evidence of snake worship, child sacrifices, and other abominable practices.

The numerous inscribed pottery fragments from the royal storehouse of Samaria, already mentioned in the preceding section, play also an important role in the confirmation of Holy Scripture. The many personal names contained in these unpretentious tax records reveal the mixture of Baal worship with the true religion of Israel. Among them we find such well-known names as *Abibaal*, *Baalzamar*, *Baalzaker*, *Baalmeoni*, *Meribaal*, and *Baala*, to give a few examples of names that were connected with Baal. Names containing abbreviations of the divine name Jehovah were *Jedaiah*, *Jehoiada*, *Shemariah*, and others.

These personal names are an indication of the religious conditions prevailing in Ahab’s time, when Elijah fought so vigorously against the worship of Baal. But they also show the truth of the divine statement made to Elijah that many had not bowed their knees to Baal (1 Kings 19:18) at a time when Elijah was thinking that he was the only one left of the true worshipers of God. These Samaria pottery fragments, however, show us that there were still just as many parents who gave their children names connected with Jehovah as there were parents who gave their children Baal names.

On the other hand, the 21 letters found at Lachish come from the time after the reform of King Josiah of Judah. They contain many personal names of men who lived in the last few months of Judah’s existence, and like the Samaria tax records, shed light on the religious conditions prevailing at the time when these names were given, since the meanings of most Hebrew personal names reflect the religious feelings of their givers. The great majority of these names are connected with the name of Jehovah, as illustrated in the last part of Jeremiah’s name. They show clearly the influence of Josiah’s reform, when idolatry was stamped out and all pagan gods were removed from the country. Not one of the men mentioned in the Lachish Letters bears a name connected with Baal or another foreign deity. Only the names of Judah’s true God, Elohim and Jehovah, are found in these documents.

The Holy Land has thus through such archeological material made an important contribution for the establishment of the reliability of the Bible. In ancient times Palestine was the land in which most of the history described in the Old Testament was enacted, and it is now furnishing the proofs by which the mouths of infidels, critics, and doubters can be silenced.

VIII. The Resurrection of Ancient Syria

Since the meaning of the geographical term Syria has been subjected to changes in ancient and modern times, it is necessary to define the geographical limits of Syria as used in this chapter. The term is employed here for the country that lies between the northern border of Palestine and the great bend of the Euphrates, and whose western boundary is formed by the Mediterranean Sea, and the eastern boundary by the Arabian Desert. This includes Lebanon, with its two great chains of mountains known as the Lebanon and the Anti-Lebanon. Beautiful Mt. Hermon belongs to the latter range. The two main rivers of Syria, the Orontes and the Litani, flow in opposite directions between the two mountain ranges until they break through to the coast, one in the north, and the other in the south of Syria. In ancient times the large cities of this country lay either in the narrow strip of coastland and were mostly ports, like Sidon, Tyre, Byblos, and Ugarit, or on the two main rivers in the interior, like Kadesh, Hamath, Riblah, or Qatna. Some of the most famous Syrian cities, like Damascus, Aleppo, and Palmyra, were oases in the desert.

Syria has been much less archeological activity than other Near Eastern countries, although excavations, wherever they have been carried out, have been exceptionally rewarding, much more fruitful, in fact, than in Palestine. Aside from some minor explorations in the 19th century, most of the important excavations were made between the two world wars. Only the most important ones can be mentioned here.

Excavations were carried out with great success in Byblos by Montet from 1922 to 1926, and then by Dunand until 1939. Byblos was the main export city of the precious cedarwood from Lebanon in ancient times. Since the Greeks procured Egyptian papyrus scrolls, the chief writing material of antiquity, through the Phoenician merchants from Byblos, they called these scrolls after the city where they obtained them—a name from which our modern word *Bible* the designation for the Book of books, is derived.

A number of royal tombs with very rich contents were found in Byblos, which with other objects of art discovered during the excavations have added to our knowledge of Phoenician art and craftsmanship. These finds from Byblos help us to appreciate the splendor and beauty of Solomon's Temple, since its chief interior decorator was Phoenician, although half Hebrew by birth (see 1 Kings 7:13, 14).

Furthermore, many Phoenician inscriptions came to light in Byblos. In the late second millennium B.C., they were written in a script generally called Phoenician, which, however, was in fact the pre-exilic Hebrew. They enable us to trace the development of Hebrew writing from the earliest alphabetic inscriptions found on Sinai, through those discovered in Palestine, to the later Phoenician and Hebrew inscriptions, leading us in an unbroken sequence up to the time of the Exile.

The old harbor, installations of ancient Tyre, a city about which the Bible has so much to say, were investigated by divers. In Qatna on the Orontes, Hyksos fortifications were uncovered, and in a small temple was found a collection of texts that cleared up

some linguistic puzzles of the Hebrew Bible. Important discoveries were also made at Tripolis, Beirut, Sidon, and other places.

However, the most sensational results were achieved by the excavations at Ras Shamra, the ancient Ugarit, by Claude F.-A. Schaeffer since 1929. This north Canaanite port city was destroyed in the 13th century B.C. and never rebuilt, so that its ruins retained much important material, and have proved to be an almost inexhaustible mine of valuable information. Wherever the spade has been put into the mound of Ras Shamra important discoveries have been made. Temples of Baal and Dagon were uncovered, a palace of the local king, and inscriptions of Egyptian officials. Many texts in the Mesopotamian cuneiform script have been found, among which there are letters addressed to and received from Syrian, Mesopotamian, and Hittite kings.

The most important find has been a great number of clay tablets containing hundreds of texts written in a hitherto unknown cuneiform script. When the first texts were found and published by Charles Virolleaud in 1929, Professors Bauer of Germany and Dhorme of France succeeded in deciphering this script in an unbelievably short time. Since then many more texts have come to light in the same writing, two of them even in Palestine. The present-day student can study Ugaritic, as the language and script of Ugaritic is called, with all linguistic aids provided, such as grammars, a dictionary, concordance, well-published texts, and translations.

The great importance of these texts lies in the fact that they are written in a Canaanite dialect of the middle of the second millennium B.C., closely related to ancient Hebrew. Since most of these texts are of a mythological nature, dealing with stories about the Canaanite gods and religion, they are highly instructive. They answer many questions that the student of the Bible asks about the ancient Canaanites, questions not clearly answered in the Bible.

We learn what the Canaanites believed about Baal, Anath, El, Dagon and many others of their gods—about the shocking immorality and bloodthirstiness thought to exist among those deities, which show unmistakably the gulf existing between the simple and elevating religion of Israel and the degraded and corrupting one of the Canaanites. From these pagan beliefs, revealed through the documents of Ras Shamra and from other evidences of their serpent worship, human sacrifices, and the practice of ritual immorality, we see the depth of depravity to which the Canaanite religion and morals had descended, and why it was necessary for God to decree the destruction of these people, in order to prevent a corruption of the morals and religion of the Israelites, through whom He designed to give to the world the purest religious concepts.

IX. The Resurrection of Ancient Anatolia

Anatolia, or Asia Minor, did not play such a great role in providing material that sheds light on the Bible, but the archeological work carried out there must nevertheless be briefly mentioned.

There was a time when nothing was known of the Hittites except what the Bible said about them. Critics could boldly proclaim, without fear of being proved incorrect, that the Hittites simply had not existed, and that the Biblical “kings of the Hittites” belong in the realm of fable and legend.

All this has changed since 1879, when A. H. Sayce and W. Wright pointed out that strange hieroglyphic inscriptions found in northern Syria and Anatolia were monuments of the long-lost Hittites. Many scholars have tried to decipher these inscriptions, which

since that time have come to light in increasing numbers. They were produced by the Hittites, as we know now, from 1600 to 700 B.C., but for a long time they seemed unwilling to give up their long-kept secrets. Finally in 1947 Bossert found bilingual inscriptions, written in Phoenician and hieroglyphic Hittite, at the Cilician site of Karatepe. Since that time the deciphering of that mysterious script and language has been making rapid progress. It is with keen anticipation that historians and Biblical scholars are looking forward to the time when they can read the Hittite hieroglyphic inscriptions as readily as those of other ancient nations that have done so much to increase our knowledge of the world of antiquity.

From 1906 to 1912 the Hittite capital Hattushash, now Bogazkoy, was excavated by Hugo Winckler. He was so fortunate as to find the royal archives written in cuneiform Hittite, a script that was used by the Hittites in addition to the hieroglyphic system of writing. The cuneiform Hittite was quickly deciphered by the Czech scholar Hrozny in 1915, and a number of scholars have since then given us translations of the documents found at Bogazkoy. These texts have placed our knowledge concerning the Hittite nation on a solid basis. The *Encyclopaedia Britannica* devoted to the Hittites eight lines of one column in its edition of 1860; its edition of 1947 has given over ten full pages of two columns each to an article dealing with Hittite history, culture, and religion.

Several cities of the Hittite states of northern Syria with whom Solomon traded (1 Kings 10:29) have been excavated. Among them Zinjirli and Carchemish, excavated respectively by the Germans (1888-1902) and the British (1911-14 and 1920), are the most important. Aramaic and Hittite inscriptions, many sculptures, etc., came to light, enabling us to reconstruct the history of those states and better understand Biblical statements dealing with them.

X. The Resurrection of Ancient Persia

Ancient Persia is of interest to the Bible reader because of its connections with the postexilic history of Judah, when Persia, then the foremost world power, was responsible for the restoration of the Jewish state in Palestine.

Susa, the old Elamite capital, is mentioned in the Bible under the name Shushan, where Queen Esther's influence in the palace saved her people from attempted annihilation. The excavations of Susa were begun in 1885 by the Dieulafoys, and have been continued intermittently to the present time under the direction of other archeologists. It was in the ruins of the palace of Susa that the important Code of Hammurabi was found (described and discussed in sec. 5 of this article, also in Additional Note at close of Ex. 21). Another important result from the excavations of Susa is the fact that the layout of its palace shows such a perfect agreement with the description given of it in the book of Esther that noted scholars have been led to admit that only someone well acquainted with the palace, its divisions, and its court ceremonial could have written that book.

From 1931 to the beginning of the second world war excavations for the Oriental Institute of the University of Chicago were carried on at the old Achaemenian capital of Persepolis, first under the direction of Ernst Herzfeld, later under Erich Schmidt. A great number of reliefs depicting scenes of peace and war from the time of Darius the Great, Xerxes, and Artaxerxes, all names with which each Bible reader is familiar, were uncovered. Thousands of administrative texts written in Elamite cuneiform on clay

tablets give an insight into the highly efficient organization of the Persian Empire, under which men like Zerubbabel, Mordecai, Ezra, and Nehemiah worked.

Important discoveries were also made elsewhere in ancient Persia, but not enough to fill our gaps concerning the history of that important country. There is still a great work to be done in that country before its history will be as well known as that of some other nations of antiquity.

XI. The Resurrection of Ancient Arabia

Arabia, considered by many scholars the cradle of civilizations, has been more or less a closed country to the explorer, because of the fanatical exclusiveness of its Moslem population. The exploration of its ancient remains is not less important than of other Near Eastern countries, because of the many connections the Arabian peoples have had with the surrounding countries.

The first expedition sent to Arabia in 1762 ended in catastrophe, but its only survivor, Carsten Niebuhr, brought back the copies of many inscriptions of the pre-Mohammedan periods. The script of these inscriptions, then called Hymiarite, was deciphered in 1841 by Gesenius and Rödiger, and since that time our knowledge concerning the history and culture of ancient Arabia has been greatly enriched. Joseph Halévy brought back some 600 more inscriptions, and Edward Glaser succeeded (1882-94) in adding another thousand. By further additions the number of known pre-Islamic Arabian inscriptions has grown to more than 5,000. Although the extant texts do not go back farther than the 8th century B.C., they are of great importance to the student of the Hebrew text of the Old Testament, since they contain many Biblical words, and illuminate religious concepts expressed in the Bible.

The first excavation on Arabian soil was carried out in 1928, with meager results, but in 1950 large-scale excavations began in the south Arabian site of Qatabân under the direction of Wendell Phillips, with W. F. Albright as archeologist. In 1951 Wendell Phillips, with a staff of able scholars, began excavations at Marîb in Yemen, generally believed to be the capital of the Queen of Sheba, famed for her visit to King Solomon. Marîb had been a forbidden city for a long time, and before 1951 had been visited by a smaller number of Westerners than Mecca. Knowing that Marîb contained impressive ruins of ancient buildings, the scholarly world had hoped for a long time to examine this site scientifically. Great therefore was the joy when permission was granted to open excavations in the capital of the Queen of Sheba, where important archeological discoveries could be expected. Unfortunately, the hostility of the local officials necessitated hasty withdrawal in February, 1952, but the short campaign was nevertheless fruitful. It recovered copies of many inscriptions, and has given us good reconstructions and pictures of the ancient temple of the moon god. The preliminary reports of this excavation have whetted the taste of every student of ancient history, and it is only to be hoped that the interrupted work may be taken up again in the near future.

Bibliography

The books listed here are worth consulting for the factual information, which is in most cases reliable, but reservations have to be made in regard to the interpretations of archeological evidence in relation to the Bible, since most of the authors are more or less modernistically influenced. Older books dealing with the field of Biblical archeology are usually much out of date, and very unreliable, since new material has clarified many points that were formerly misunderstood.

- ALBRIGHT, WILLIAM FOXWELL. *Archeology and the Religion of Israel* (5th ed.). Baltimore: The Johns Hopkins Press, 1956. A book especially helpful on the religious concepts and practices of the nations surrounding Israel in comparison with those of Israel.
- _____. *From the Stone Age to Christianity* (2d ed.). Garden City, N. Y.: Doubleday, 1957. A highly interesting and authoritative general survey of archeological discoveries, and their bearing on the ancient history in general and that of Israel in particular.
- _____. *The Archeology of Palestine* (rev. ed.). Baltimore: Penguin Books, 1960. An illustrated work that brings together the results of seventy-five years of archeological exploration in Palestine.
- The Bible and the Ancient Near East*. Edited by G. Ernest Wright. Garden City, N.Y.: Doubleday, 1965. Essays in honor of William Foxwell Albright, written by specialists, discussing various phases of literature, history, archeology, and culture of the Hebrews and other peoples of the Old Testament world.
- The Biblical Archeologist*. Published by the American Schools of Oriental Research, 126 Inman St., Cambridge, Mass. 02139, 1938—. \$5.00 per year. This little quarterly contains reliable, up-to-date material that has a bearing on the Bible. It is the most widely read archeological periodical of its kind.
- The Biblical Archaeologist Reader*. 3 vols. Garden City, N.Y.: Doubleday, 1961-970. These volumes present the most important articles from the thirty years of *The Biblical Archaeologist*. (Only vol. 3 remained in print in 1974.)
- CROSS, FRANK M. JR. *The Ancient Library of Qumran and Modern Biblical Studies* (rev. ed.). Garden City, N.Y.: Doubleday, 1958. A reliable survey of the Dead Sea scroll discoveries during the first decade of research.
- DE VAUX, ROLAND. *Ancient Israel*. Translated by John McHugh. New York: McGraw-Hill, 1961. A study of the social, civil, military, and religious institutions of the Israelites compared with those of their neighbors, intended as a help to the understanding of the Bible narratives.
- EDWARDS, I. E. *The Pyramids of Egypt*. Baltimore: Penguin Books, 1961. An admirable survey of the Egyptian pyramids and their structural development.
- Everyday Life in Bible Times*. Washington: National Geographic Society, 1968. A collection of articles (with many pictures in color, some based on ancient finds) written by experts, on Egypt, Mesopotamia, Palestine, and other areas. More than 500,000 copies were sold in six years.
- FINEGAN, JACK. *Light From the Ancient Past* (2d ed.). Princeton: Princeton University Press, 1969, 2 vols. A reliable historical sketch of the ancient world as illuminated by archeological discoveries.
- HILPRECHT, HERMAN V., ed. *Explorations in Bible Lands During the 19th Century*. Philadelphia: A. J. Holman and Company, 1903. 809 pp. A good survey of archeological work done during the nineteenth century by experts in the different fields of Oriental studies.
- PRITCHARD, JAMES B., ed. *The Ancient Near East in Pictures* (2d ed.). Princeton: Princeton University Press, 1969. A collection of pictures of ancient monuments and other archeological finds furnishing pictorial evidence for life in the ancient Near East.
- _____. ed. *Ancient Near Eastern Texts Relating to the Old Testament* (3d ed.). Princeton: Princeton University Press, 1969. A collection of most of the ancient Egyptian, Sumerian, Assyro-Babylonian, Hittite, and Syro-Palestinian texts that have any relation to the Old Testament. The translations are made by America's foremost scholars in each field. (This and the preceding book are also combined, in abridged form, in one volume as *The Ancient Near East: An Anthology of Texts and Pictures*.)
- The Westminster Historical Atlas to the Bible* (rev. ed.). Edited by G. Ernest Wright and Floyd V. Filson, with an introductory article by W. F. Albright. Philadelphia: The Westminster Press, 1956. 130 pp. 33 maps in full color and 88 illustrations. The best Biblical atlas on the market with a good descriptive text introducing the reader to the lands of the Bible, and the archeological discoveries shedding light on Bible history.
- WRIGHT, G. ERNEST. *Biblical Archaeology* (rev. ed.). Philadelphia: Westminster Press, 1963. A readable, authoritative and up-to-date survey of the whole field of Biblical archeology, Old Testament and New Testament, discussing the various discoveries that throw light on the Bible in the chronological order of the Biblical narratives.

The Historical Background of the Patriarchal Period

I. Western Asia Before the 15th Century B.C.

The Antediluvian Period.—The memory of the ancient nations concerning the time before the Flood was vague and unreliable, although the existence of an antediluvian history was well known. The Babylonian king lists, for example, make a clear

differentiation between the kings who lived before and those who lived after the Flood. These texts claim also that kingship originally descended from heaven, and that all rulers of the antediluvian period had had exceptionally long reigns totaling many thousands of years. Otherwise these records containing only the names of kings and their supposed regnal years have preserved no definite historical facts.

The Early Dynastic Period.—Coming to the period after the Flood, we notice once more a great vagueness in the Babylonian tradition. The Babylonian records usually begin the history of the postdiluvian period with dynasties at Kish, Uruk (Biblical Erech), Ur, and other cities, one dynasty following the other in unbroken sequence for thousands of years. This tradition was based on the earliest written records. However, the later Babylonian annalists were naturally ignorant of the period that had elapsed before writing became known. The modern archeologist has found the remains of that earlier period, which he names after the sites where certain types of objects were discovered for the first time. He speaks therefore of the Halaf Period or the Ubaid Period, since archeological materials of a certain preliterate period were first found at Tell Halaf in northern Mesopotamia, others at Tell el-Ubaid in the south.

History in the real sense begins only with the appearance of historical documents. For the earliest times the already mentioned lists of dynasties compiled by later Babylonian scribes are available, giving numerous names of rulers who were supposed to have reigned over Mesopotamia for thousands of years. When the science of Assyriology was in its infancy, scholars put a great deal of trust in these lists and readily dated the earliest historical periods of Mesopotamian culture in the seventh millennium B.C. Today we know that the later scribes who compiled these lists used old archives without understanding them. Since they lived in a time—during the Assyrian and Neo-Babylonian kingdoms—when one ruler reigned over the whole country of Mesopotamia, they thought that the same conditions had prevailed in the earliest periods. Possessing the records of early dynasties that had reigned in different cities, they thought that each of these had reigned over the whole country, and therefore they put one dynasty after another. However, we know now by means of good contemporary documents, that many of these kings were only local rulers, and that several dynasties existed side by side at the same time. This increased knowledge has resulted in some drastic shortening of the chronology of the early Mesopotamian history since the 1930's. For example, King Enshakushanna, who was dated by Prof. H. V. Hilprecht about 6500 B.C. in 1903, is now dated by scholars in the 25th century B.C.

Because they have had to reduce markedly these early dates scholars are now putting the beginning of civilization in Mesopotamia in the 35th century B.C., and the earliest written records in the third millennium. Since all these dates have been in a continuous flux for many years, and agreement has not been reached among scholars as to their accuracy, all dates that lie in the period under discussion must be used with caution, and are liable to further modification. The significant fact is the great reduction of dates that brings them rather steadily nearer to the dates that can be derived from the Bible record.

The Sumerian Civilization.—The earliest civilization of which anything is known from extra-Biblical records is that of the Sumerians. They lived in the lowland of the rivers Euphrates and Tigris, to the Persian Gulf, which in ancient times reached much farther inland than today. Cities like Kish, Uruk (the Biblical Erech), Ur, and Eridu were founded and populated by Sumerians. The ethnic relationship between the Sumerians and

other known peoples is still a mystery, since their language has no affinities with any other known language on earth. However, the Sumerians were a highly civilized nation, with a flourishing political organization. The king considered himself a representative of the gods, and was their high priest. All lands and property belonged to the temple, for which the husbandman produced his grain, the craftsman his articles of daily use, and from which both of them received their sustenance in the form of rations.

One of the most important inventions of the early Sumerians was the development of a system of writing, the earliest known script. Needing to keep records of deliveries and rations, they developed a device to keep accounts. Using clay tablets as writing material, they at first drew pictorial signs in the soft clay by utilizing the rebus principle. The pictures quickly became conventional signs pressed into the clay with a stylus, because the process of drawing signs in wet clay proved to be unsatisfactory. Since these signs consist of many small horizontal, perpendicular, and diagonal wedge-shaped indentations, this script has received the name cuneiform, or wedge-shaped, script. Many different peoples, like the Semitic Babylonians and the Aryan Hurrians and Hittites, adopted this system of cuneiform writing with only slight modifications. Some, like the Canaanite scribes of Ugarit and the later Persians, used the idea of writing with cuneiform signs, but developed an alphabetic script of their own with only a limited number of characters. The Canaanites had less than 30, the Persians less than 50 signs, whereas the Sumerian syllabic cuneiform script consisted of several hundred characters.

In the field of craftsmanship, architecture, and art the ancient Sumerians reached a high level. The temple ruins at Uruk, Eridu, and Ur have shown in a remarkable way, and the sensational discovery of the royal tombs at Ur has testified to a highly developed craftsmanship in the production of jewelry, musical instruments, and furniture, a skill that was hardly ever surpassed anywhere in ancient times.

The Dynasty of Akkad.—After the Sumerians had reigned over Mesopotamia for an unknown length of time the first Semitic empire was founded by Sargon of Akkad, who is dated by historians in the 24th century B.C. The Semites seem to have levied north of the Sumerian city states, since texts have been found in Mari and elsewhere that attest the existence of Semitic city organizations during the time of the early Sumerian dynasties. However, they did not play a great role before the time of Sargon. He was the first in history, and many legends were told later time about his birth, military campaigns, and other achievements.

Sargon defeated the strongest of the Sumerian kings, Lugal-zage-si of Uruk, and then conquered other Sumerian towns, like Ur, extending his rule over the whole Mesopotamian valley from the Persian Gulf to the Mediterranean, or as he expressed it from “the lower to the upper sea.” He claims to have cut cedars in the western mountains, probably Lebanon, and a military campaign into Anatolia is also later recorded of this great Semitic ruler.

His rule, however, did not remain unchallenged, and he, as well as his sons, had to quench several revolts of Sumerian cities. His grandson Narram-Sin was still able to hold the empire together. Its extent under him can be seen from the fact that one of his monuments has been found in the upper Tigris region, and one of his palaces, an impressive fortress, has been discovered as far west as Tell Brak on the upper Chabur, a tributary of the upper Euphrates. However, he had to fight against the Elamites and the

Guti, mountainous barbarians who penetrated the fertile land from Zagros Mountains and tried to get a foothold in Mesopotamia.

The Guti.—Under the successors of Naram-Sin the Guti became stronger, and finally succeeded in making an end of the kingdom of Akkad, after the Semites had reigned over Western Asia for more than 150 years. The 124 years of traditional Guti rule over Mesopotamia are a dark period. Very little is known of that time. In order literature this period was always considered to have been a time of distress, and the Guti were described as raw barbarians. However, their rule seems to have been only nominal. This can be seen from the fact that several cities were ruled by independent Sumerian rulers, of whom one at least, the prince of Ur, dared to call himself king. Lagash is another city, which under its powerful prince Gudea seems to be retained a semi-independent position. Many statutes and inscriptions of Gudea have been found in the ruins of his city, in which he records that he had procured timber and stone from northern Syria and diorite from southeastern Arabia, and that he had conducted military campaigns against Elam and Persia.

The Sumerian Restoration.—The Guti were finally expelled from the country of Utukhegal of Erech, who was celebrated afterward as the liberator of the country from foreign rule, and became king over the country. Utukhegal was succeeded by one of his governors, Ur-Nammu of the city of Ur, founder of the powerful so-called Third Dynasty of Ur, which reigned over Mesopotamia for about one century around 2000 B.C. Plentiful documents from this period give us a clear picture of the history and culture of the time. It was toward the end of this period that Abraham was born and reared in the city of Ur, the center of a rich political and intellectual life. In Ur's schools, reading, writing, arithmetic, and geography were taught, and Ur's ordinary dwellings were better constructed, archeologists tell us, than the average modest house in modern Iraq. The city possessed even such seemingly modern conveniences as a sewer system, and the public buildings and monuments were so well planned and built that they are better preserved today than many buildings of later periods. The temple tower of Ur is still the best-preserved ancient building of all Mesopotamia.

After five kings of Ur had ruled over Mesopotamia for a little more than 100 years, the Semitic king Ishbi-Ira of Mari conquered the leading Sumerian city of Isin and founded the dynasty of Isin, while the Elamites at the same time conquered Larsa, another Sumerian city, and founded a dynasty there. The country was divided between these two ruling houses, and was ruled by them for more than 200 years. Although records of many of these kings of the dynasties of Isin and Larsa exist, very little is known about the political history of that period, in which the patriarchs Abraham and Isaac lived. The most important political event of that period was the appearance of the Amorites, who, after emerging from the Arabian Desert, took possession of northern Mesopotamia, and for a time occupied the throne of Larsa.

The Amorite or First Dynasty of Babylon.—When the Amorites had consolidated their hold on Mesopotamia, and occupied great parts of the country, they made Babylon their capital, and founded the First Dynasty of Babylon. Best known of all its rulers is the powerful Hammurabi, the sixth king of that dynasty, whose reign is dated by Alright and Cornelius from 1728 to 1686 B.C., dates which are now widely accepted by scholars. Hammurabi is best known because of his law code (see sec. 5 of the article on archeology, also the Additional Note at the close of Ex. 21), which shows many

similarities with the civil code of the Israelites, and because of fact that he was formerly identified with the Biblical king Amraphel of Gen. 14, an identification that for various reasons cannot be correct.

Hammurabi was able to conquer all southern Mesopotamia after having defeated Rim-Sin of Larsa, the last king of that dynasty. He then turned to the north, took the great city of Mari, and disposed of its ruler. It is even possible that he extended his rule over Assyria, which had become powerful in the northeastern part of Mesopotamia during the previous two centuries. Hammurabi's empire finally approximated in size that of Sargon, some 600 years earlier.

Hammurabi's age saw a great number of literary productions. In fact, it became known as the classical age of literature among the later Babylonians. The great epics and myths of the Sumerians were put in writing at that time. To these great literary productions belongs the epic of creation, "Enuma elish," the Gilgamesh epic containing the Sumero-Babylonian story of the Flood, (see sec. 5 of the article on archeology in this volume), and Adapia epic, in which some scholars have thought to discover reminiscences of the story of the fall of man, the Etana myth, and many other myths dealing with adventures of national heroes and gods.

Hammurabi's time saw the greatest extension of Amorite power. These people, having entered the fertile lands of Western Asia in the beginning of the second millennium, by infiltration and conquest had become masters not only of Mesopotamia but also of Syria and Palestine, where they formed the ruling class for centuries, as we know for Biblical and extra-Biblical sources. They were the people with whom Abraham had to deal in Palestine (Gen. 14:13), and whom Moses defeated when he led the children of Israel into the Land of Promise (Deut. 3:8; 4:47).

None of Hammurabi's successors equaled him in talent and political qualities. Although the dynasty lasted for more than a hundred years after Hammurabi's death, the kingdom of Babylon became a weak power, and had to tolerate the infiltration of other mountain peoples known as Kassites, who finally took possession of the country. However, not the Kassites but the Hittites made an end to the First Dynasty of Babylon. About 1550 B.C., they raided the country and sacked Babylon. This new nation, which had recently entered the political horizon of the ancient Near Eastern world, draws our attention for a moment to Asia Minor, where a new empire was being built.

Early Anatolia.—The earliest written records from Asia Minor, or Anatolia, come from Assyrian merchants who had founded colonies where they carried on a prosperous trade with the native Anatolian population. Most of these documents, which already amount to several thousands, are known under the name Cappadocian Tablets. They come from Kültepe, ancient Kanish, the main colony of these Assyrian merchants in the 19th century B.C. These merchants imported tin and an expensive cloth from Assyria, and traded these articles for silver and copper, in which Anatolia was rich. We know very little of the native population of Anatolia of that time, although the Assyrian texts mentioned some kings, like Anitta, who apparently was a powerful ruler. It is interesting to find him in possession of an iron throne during a time when, according to many scholars, iron was still unknown.

The Hittites.—Around 1600 B.C. the historical Hittites appeared in Anatolia, and founded a kingdom with their capital at Khattushash, the present village of Bagozky, near Ankara, the modern capital of Turkey. Since they adopted the Babylonian cuneiform

writing as their script, and have left us many texts, we are able to reconstruct their history and culture. When they came into the country, they took over many of the religious practices of the native Anatolian peoples, and others from the Hurrians, Babylonians, and others.

They also preserved in writing the religious texts of their Anatolian precursors, and gave them interlinear Hittite translations. Since the Hittites called the language of these unknown people of earlier Anatolia “Hattili” while calling their own language “Neshumli,” scholars have given the name proto-Hittites to the precursors of the Hittites. The proto-Hittites were most probably the people with whom Abraham dealt in Hebron (Gen. 25:9), and are repeatedly mentioned in the earliest records of the Bible (Gen. 26:34; Ex. 3:8, 17; etc.).

In the second half of the 16th century B.C. the Hittites, under their king Murshilish I, made a raid into Babylonia and sacked the capital city, at the same time bringing to an end of First Dynasty of Babylon. However, they refrained from taking possession of Babylonia for themselves, and returned to Anatolia, where they built a strong kingdom that lasted until about 1200 B.C. At that time it was destroyed in turn by the Sea peoples (see article on Historical Background in Volume II of this commentary), who moved through Anatolia in search of new homes. However, these later events fall outside our period and will not be discussed here.

The Hurrians and Mitanni.—Hurrian people are mentioned in many secular text from the beginning of the second millennium B.C. Speaking an Indo-European language, they are known to the Bible reader under the name of Horites, or Horims (Gen. 14:6; 36:20, 21; Deut. 2:12, 22). Having come from the north, they settled in northern Mesopotamia, and founded the kingdom of Mitanni, lying between the great bend of the Euphrates and its tributaries the Balikh and Khabur rivers. When the Egyptian kings of the Eighteenth Dynasty in the 16th and 15th centuries B.C. built up their Asiatic empire by conquering Palestine and Syria, they fought several wars against the kingdom of Mitanni. However, toward the end of the 15th century B.C. the two nations came to a political agreement, and lived on good terms with each other. By that time the Hittites had become dangerously strong, and were considered the potential enemies of the Egyptians. The Hittites were finally able to defeat the kingdom of Mitanni and absorb it as part of the Hittite Empire.

The Kassites in Mesopotamia.—After the raiding Hittites had sacked Babylon in the 16th century B.C. and departed, the Kassites grasped the opportunity to make themselves masters of the country. These Kassites, who had probably come from the Zagros Mountains and settled in Babylonia some time before, began a rule over Lower Mesopotamia that lasted of the next several centuries. Once more we come to a dark period of Mesopotamian history concerning which very little information is available. However, most of the names of the Kassite kings are known, and some letters are extant which the Kassite kings Kadashman-Kharbe I and Burna-buriash II wrote to Amenhotep III and IV (Akhnaton) of Egypt. These provide extremely links between the chronology of Egypt and Mesopotamia.

The Kassites seem to have introduced a sort of feudal system, and divided the country into great estates that in some instances contained small townships and villages. However, the obligations of the great landlords toward the king are not clear. Only the

great city of Nippur seems to have enjoyed a semi-independent status, with a local ruler who owned nominal subservience to the Kassite overlord.

Conditions in Western Asia in the Probable Time of the Exodus.—In the 15th century B.C., probably the time of the Exodus, the Kassites ruled over the native Semitic populations of Lower Mesopotamia as feudal lords, with no aspirations of extending their rule to any of the surrounding countries. The Indo-European Hurrians, or Horites, ruled over the Aramaic-speaking populations of Upper Mesopotamia. To the west of the Mitanni kingdom was the expanding Hittite empire, which at that time made strong inroads into northern Syria, territory that was claimed partly by Egypt and partly by the Mitanni kings.

The native populations of Syria and Palestine consisted of Aramaeans in the north, Canaanites in the south, and Phoenicians in the coastal region, with Amorites as local rulers over most of the country. After the military campaigns of Thutmose III, great parts of Syria and Palestine belonged to Egypt. They were tributary to the Pharaoh, who had garrison troops in some cities and high commissioners in a few centers like Yarimuta in Syria and Gaza in Palestine.

Cuneiform writing was known everywhere and extensively used in all countries of Western Asia. This accounts for our comparatively extensive knowledge of the history of that time. Even in Palestine, ruled during the 16th and 15th centuries B.C. by Egypt, cuneiform writing was widely used. This script was employed not only in the correspondence of Asiatic rulers with one another but also in their correspondence with the Egyptian court, as we know from the Amarna Letters. Egyptian scribes therefore had to learn this system of writing for their dealings with the king's Asiatic friends and subjects. At the same time experiments were made in Palestine with a new alphabetic system of writing, invented by some Palestinian miners at Sinai. This simple system of writing became in time, through later modifications by the Greeks, perhaps the most perfect script ever to be invented.

Cultural life reached a high level in most parts of Western Asia during the patriarchal age. The cities possessed strong fortification systems and well-built palaces and temples. Craftsmanship and art were highly developed, and the system of warfare had been perfected to a level on which it remained for many centuries afterward. The greatest improvement had been made about two centuries before the time of Moses, when some peoples known under the name of Hyksos, who had probably come from beyond the Caucasus Mountains, had introduced the horse and chariot. This was the beginning of mechanical warfare, and the starting point for the development of armies on wheels.

The religious concepts of all Western Asiatic nations were somewhat similar. All these peoples were polytheists, and worshiped idols as visible representations of their gods. Their places of worship were either temple buildings or sacred places in the open air, called in the Bible "high places." Religious rites were connected with sacrifices of animals and other offerings. In some cases human beings were offered. The gods were usually personified forces of nature. Among most peoples the major roles were played by sun- and moon-gods, but the principal deities of other peoples were storm-gods or other divinities of nature. The gods of fertility—Baal among the Canaanites, Tammuz in Mesopotamia—were most widely worshiped, and numerous local deities, like local patron saints, received much honor.

All pagan nations of antiquity believed in the immortal state of the soul, whose welfare was regarded as depending on the care of the body and the rites performed for the deceased. Therefore much care was taken in disposing of the dead. In order that the departed might have everything he needed to enjoy the pleasures of life, food and drink, furniture, tools, weapons, and jewelry were usually placed in graves for use in the afterlife.

II. Egypt Before the 15th Century B.C.

The history of the earliest period in Egypt is, like that of Western Asia, shrouded in mystery and legends. Scholars have thought to find reminiscences of some prehistoric events in old Egyptian myths, like that which describes the fight between the gods Osiris and Set for the throne of Egypt. But it is far from certain that these myths have any historical background. Prehistorians, on the other hand, have excavated some villages and cemeteries that they date in the predynastic period, but the exact dating of these supposedly early remains is just as difficult as the early dating in Mesopotamia, and has not yet been achieved.

However, there is clear evidence that the Egyptian culture owed its impulses to Mesopotamia. The earliest monumental buildings were built of brick, as in the Tigris-Euphrates valley, with the same architectural features known as walls with paneled recesses. In both countries similar artistic designs were used on seals and for the decorations of vessels or other objects. Also, the idea of writing seems to have reached Egypt from the Sumerians, although the Egyptians developed a different, entirely independent script. Among other cultural achievements that Egypt probably received from Mesopotamia are to be listed metallurgy, the potter's wheel, and the cylinder seal.

The Chronology of Ancient Egypt.—The early Egyptian chronology has, like that of Western Asia, experienced some drastic reductions since the turn of the century. At that time scholars dated the beginning of the dynastic period in the sixth or fifth millennium B.C., and the great American Egyptologist James H. Breasted wrote emphatically that the calendar was introduced to Egypt in 4241 B.C., “the earliest fixed date in the history of the world as known to us” (*A History of Egypt*, p. 14). Discoveries made since that time have shown that the conclusions which resulted in this date and other early dates were wrong; thus scholars have been forced to reduce the Egyptian chronology so much that the beginning of the dynastic period is now placed between 3100 and 2800 B.C. Even yet scholars have reached no unanimity in the chronology of Egypt.

The dates given hereafter are the lowest, that is latest, accepted by Egyptologists at the present time. It is recognized by them that those of the period lying before 2200 B.C. may be off by 50 to 100 years, and that those from 2200 to 2000 B.C. may be off by 25 to 50 years. It is only in the Twelfth Dynasty, dating from 1991 to 1778 B.C., that we are certain of the correctness of our dates, since they are based on astronomical texts. For the period after 1778 B.C. there is again no certainty for 200 years, and for the dates of the Eighteenth Dynasty, from about 1580 B.C., we still have to allow a margin of error of a few years.

These remarks are made in order to caution the reader against readily accepting any of the many conflicting dates for the early periods of Egyptian history that he will find in books. Most of these books are already outmoded, and those recently produced contain dates that may still have to be reduced as soon as further evidence becomes available.

Hence dates for the third millennium, which are hereafter given, are those currently accepted by Egyptologists, but they are not necessarily correct. However, the historian needs dates for reconstructing history, for he cannot give a picture of the course of events by ignoring chronology entirely, even if he is aware of its uncertainties.

The Protodynastic Period—First and Second Dynasties.—Little is known of this period, during which the whole country seems to have been united under one crown for the first time. Traditionally this achievement is attributed to King Menes, first ruler of the First Dynasty. Previous to this unification—by whomsoever it was accomplished—Egypt had consisted of two countries. This is reflected in the titulary of the king, in the Egyptian name of the country, in the dual organization of the government retained throughout its history, and many other evidences.

The system of writing used at the beginning of the First Dynasty seems to be without any recognizable antecedents. There is no evidence that Egypt went through stages of development, as did the Sumerians in Mesopotamia. Hence the conclusion is reached that the Egyptians adopted fully developed principles of writing through contact with another people. Since there is evidence that the Sumerians were the only people who possessed a script before the Egyptians did, the possibility is great that the idea of writing was passed on to the Egyptians by the Sumerians. The first inscriptions of the First and Second Dynasties are short, and in abbreviated form. This is the reason that they are difficult to read. However, the system of writing was already fully developed, and remained essentially the same for many centuries.

The hieroglyphic Egyptian script is pure picture writing. A sign may stand for the object depicted, or according to the rebus principle for something that is similar in sound, although entirely different in meaning. An English example may be used to make this principle clear: The picture of a lyre, a stringed instrument, can be used in a rebus for a liar, a person who tells an untruth. In the same sense the Egyptians used the picture of a house, called *per*, to depict a house, but used the same sign in another context for the word *to walk*, since walking was also called *per* in the Egyptian language. Such a system of writing needed many hundreds of signs to express every concrete and abstract thought. Thus the Egyptian system of writing was hard to learn. The individual signs were later abbreviated in cursive writing, which is called hieratic, and even more so in the later demotic script, but remained essentially complicated until the Greek alphabetic script replaced the old system in the Christian period.

Royal tombs of the kings of the first two dynasties have been found in the sacred city of Abydos. However, tombs of some of the same kings have also been unearthed at Saqqara, the necropolis of the Lower Egyptian capital Memphis. It is therefore not certain which of these structures must be considered as tombs and which only as cenotaphs. The early tombs were built of brick and timber, but toward the end of the Second Dynasty the first tomb chambers were built of stone.

Through the Palermo Stone, containing fragmentary annals of that period, we learn that, from the Second Dynasty, a fiscal census was taken every second year, that the annual rising of the Nile was carefully watched and regularly recorded for future reference, that shipbuilding played an important role in Egypt's economy, and that the copper industry had reached so great a proficiency that King Khasekhemui had a copper statue of himself made in life size.

The Old Kingdom—Third to Sixth Dynasty.—The pyramid age began with the Third Dynasty. The development of monumental stone buildings was incredibly fast. Within 50 years of the first known use of stone for the lining of a tomb chamber, King Zoser built the step pyramid at Saqqara completely of stone, 200 feet high. He surrounded it with numerous stone buildings and an enclosure wall, the whole complex being 1,800 feet long and 415 feet wide. During the next 75 years work in stone had been so well mastered that King Khufu (Cheops) was able to erect the greatest stone monument ever built, the Great Pyramid at Gizeh. This was 480 feet high, and consisted of 6,250,000 tons of stone, with each block averaging 21/2 tons. His son Chephren and grandson Mycerinus built adjoining pyramids that were only slightly smaller and are still standing in all their majesty.

The kings built tombs—the pyramids are royal tombs and nothing else—that were intended to last for eternity and to ensure the preservation of the king's body for all time. These early monarchs succeeded in building monuments that have withstood the destructive forces of nature and man for thousands of years, but they were not able to guarantee the protection of their bodies and the treasures that they took with them into the grave. Not one of the pyramid builders' bodies has escaped the hand of robbers, and their treasures shared the fate of their owners.

The national resources of Egypt were expended in this way for centuries, to provide burial places for the deified kings. While a king lived all the male population of Egypt was subject to summons, during the seasons when no field work was done, for work in the quarries, for the transport of the blocks of stone, and for the actual building operations. When such a monument was finished and the king had finally died, there was no relief for the poor populace, since the royal successor would start the whole process over again, and build another pyramid. This went on for centuries; consequently Egypt's economy became exhausted, with the result that the pyramids became smaller with every generation, and the fermenting unrest finally caused a revolution that ended this squandering of the national resources.

The Old Kingdom reached a high cultural level. This is especially seen in its architectural monuments. The technical and scientific achievements of the pyramid builders remain extremely remarkable. It is marvelous that they were able to handle such enormous amounts of stone without a knowledge of the wheel—which came to Egypt only several centuries later—and without either pulley or crane. They were capable of doing a first-class job by sheer man power with the help of ropes, sledges, levers, and sloping ramps.

The precision that was reached is almost fantastic, and can hardly be improved on by modern builders. The Great Pyramid may once more serve as an example to illustrate this precision. That monument was erected on an originally uneven plateau, which had been leveled off so accurately that the deviation from the true plane from the northwestern to the southeastern corner amounts to only .004 per cent. The same precision existed in regard to the squareness of the pyramid, showing an error of only .09 per cent between its northern and southern sides, and of only .003 per cent between its eastern and western sides.

Although the Egyptians had a complicated system of mathematics, their mathematical texts show that they were able to compute correctly the volume of a truncated pyramid or of a cylinder. In the Old Kingdom their medical science reached a level of efficiency that

was little improved for thousands of years. It became so famous in the ancient world that even the Greeks made an Egyptian physician of hoary antiquity their god of medicine. Also in art and literature the pattern was set for the succeeding periods of Egyptian history, and very little change in all these fields occurred throughout the ancient history of Egypt. This high cultural level of the Old Kingdom civilization was recognized by later generations, which labeled that time as Egypt's classical period.

The Egyptian form of government during the Old Kingdom period was autocratic, with the king as an absolute monarch. He was considered to be "the good god" of Egypt. Nubia was partly subjugated and its gold mines exploited; expeditions were sent to Sinai for copper and turquoise, or to Byblos for cedarwood. Also some military campaigns into Palestine were undertaken, but no serious attempt was made to build up a foreign empire.

This Old Kingdom, looked back to as the glorious period of Egyptian history, came to an end in the 22d century B.C., and was followed by a time of chaos and anarchy. The deciding factors in its fall were an increasing poverty of the population, since all the wealth of the nation was used for royal buildings; a continuous increase of the power of local governors; and the fact that a weak king, Pepi II, had reigned too long (90 years).

The First Intermediate Period—Seventh to Eleventh Dynasty.—The following century and a half saw chaotic conditions (*c.* 2150-2000 B.C.), with a number of local rulers attempting to become supreme kings over the country. The princes of Coptos, Heracleopolis, Siut, and Thebes called themselves kings, fought with one another and tried to gain supremacy over the whole country. Asiatics, probably the Amorites who appeared in the whole Near East about this time, invaded the Delta and ruled over part of the northern country from Athribis, their capital.

The extant texts of that period give us a picture of the existing social conditions. All barriers seem to have broken down. Rich people had become poor, the tombs of the illustrious dead were broken into and robbed of their contents, and many people committed suicide as a way of escape from the misery of life. For the first time in Egyptian history, texts tell of men becoming skeptics. However, it was also a time of re-evaluation of spiritual things, and many wise and morally elevated sayings come from the literature of the First Intermediate Period, which Breasted called "the Age of Character." Many people seem to have searched for new values. When all material values had proved to be insecure, search was made for imperishable good, and hence much is spoken of the value of truth, righteousness, and order in the literature of this period.

The Middle Kingdom—Eleventh and Twelfth Dynasties.—After a long struggle, princes of Thebes, classified as Eleventh Dynasty kings, defeated all their rivals, and became supreme rulers over Egypt in the second half of the 21st century B.C. Once more expeditions were sent to Sinai for copper and turquoise, and monumental buildings were erected for the royal lord, "the good god." However, some kind of revolution ended this dynasty, and after an interregnum of a few years the last vizier of the previous king became monarch over Egypt as the founder of the powerful Twelfth Dynasty.

For 200 years the rulers of this dynasty, who moved the capital from Thebes to Lisht in Middle Egypt, ruled the land with strong but responsible hands. They considered themselves to be shepherds of the people, accepting their job as a hard responsibility and not as a privilege. They stabilized the economy of the country, resumed foreign trade and mining expeditions to Sinai and Nubia, and fortified the borders against the recurring intrusions of Asiatics and Nubians. They took care of the training of the future kings by

appointing the crown prince as coregent with the father, as soon as a king felt that the son was old enough to assume the responsibilities of rulership.

If the Exodus is to be dated in the Eighteenth Dynasty, Abraham must have visited Egypt in the Twelfth Dynasty, during a Palestinian famine, and become acquainted with a Pharaoh who treated him with consideration and respect (see Gen. 12:16, 20). In one of the tombs of an Egyptian nobleman, Knemhotep by name, the arrival of 37 Palestinian men and women is depicted in color. This excellently executed and well-preserved mural painting gives us a vivid picture of the Asiatics of that time. It shows their multicolored garments, which were different from the Egyptian white dress, their weapons, shoes, a lyre, and other interesting objects and features. In looking at this picture one can visualize Abraham's family arriving in Egypt like those 37 people whose pictures an artist's brush has so vividly preserved for us.

The Middle Kingdom had lively and for the most part peaceful connections with Palestine and Syria. Only one military campaign against the Palestinian city of Shechem is recorded during that period, although the lack of records may not provide an accurate picture of the actual events. Egypt seems to have considered her Asiatic neighbors somewhat as dependent nations, for representatives of the crown were located in the larger cities of Palestine and Syria. They may have actually controlled much of the economic life of Syria and Palestine, and certainly promoted friendly relations between the local rulers and the powerful king of Egypt.

The Phoenician port city of Byblos was almost an Egyptian metropolis during that period. The native princes, who had good Amorite names, imitated Egyptian titles, court ceremonial, and language. They received precious Egyptian gifts from the Pharaohs for cedarwood, and had themselves buried like Egyptian kings on a less lavish scale.

The Second Intermediate Period—Thirteenth to Seventeenth Dynasty.—The vigorous life of the Middle Kingdom came to a sudden end, but the reasons for its end are not clear. The next dynasty was weak, and had to share its power with local rulers. Toward the end of the 18th century B.C. there took place an intrusion of foreigners, known under the name of Hyksos. In the Egyptian king lists these foreign rulers form the Fifteenth and Sixteenth Dynasties. The Jewish historian Josephus explains Hyksos to mean "shepherd kings," but we know that this name is a corruption of the Egyptian term *heqa khasut*, meaning "ruler of foreign countries." Their ethnic relationship is still somewhat uncertain, but their names, like Jaqub-hur or Anat-hur, indicate that many of the Hyksos kings were Semites, although some may have been Hurrians.

It is still uncertain whether the Hyksos invaded Egypt and became masters of the country through military actions, or by a peaceful infiltration. Since they brought with them the horse and chariot, which had been unknown to the Egyptians up to that time, it seems likely that the Hyksos, with their superior military equipment, conquered Egypt. They made the city of Avaris in the eastern Delta their capital.

Some of these Hyksos kings, like Khian, seem to have reigned over the whole country, since their monuments have been found all over Egypt, and even in Nubia. Other Hyksos rulers may have been satisfied with a nominal rule only while local native rulers held the power in their districts. We know, for example, that during the whole period of Hyksos rule the Egyptian princes of Thebes claimed royal prerogatives, and appear in Egyptian lists as the Thirteenth and Seventeenth Dynasties, without any interruption.

Another native dynasty, the so-called Fourteenth, with its seat in Xoïs, claimed authority in the western Delta.

Our records concerning this most interesting time are unfortunately very few and fragmentary. The Hyksos as foreign rulers were naturally hated by the Egyptians. After their expulsion all their monuments and records were systematically destroyed, and their memory was obliterated. Hence we have only a few contemporary monuments that have escaped the rage of the Egyptian zealots, together with some vilifying references to them by later writers, and the distorted legends of a much later time, like those that Josephus has preserved for us.

These are the reasons why great parts of the Second Intermediate Period belong to the darkest times of ancient Egyptian history, a fact deplored by historians and Biblical scholars, since it is regarded as virtually certain that Joseph held office as vizier of Egypt under one of the Hyksos kings. There is almost universal agreement among scholars concerning this point. Whatever date they accept for the Exodus, they agree that the Joseph narrative fits best into the Hyksos period. The Biblical chronology also would agree with such a view. We find not only the archeological evidence showing that the horse and chariot appeared in Egypt during that period, but also the first mention of them in the Bible in connection with the Joseph narrative (Gen. 41:43; 46:29; 47:17). The fact that during the Hyksos period a great social change took place in which all private property (with the exception of temple property) was transferred into the hands of the king, can also best be explained by the events recorded in Gen. 47:18–26.

The end of the Hyksos period came in the beginning of the 16th century B.C. Our records concerning their expulsion are once more very meager. A legendary story of some later time tells of a quarrel of Apophis, one of the last Hyksos kings, with Sekenenre, the prince of Thebes. This story would be of little interest were it not that the mummy of Sekenenre, still preserved, shows that this prince died of terrible head wounds, probably suffered in battle. It is therefore assumed that Sekenenre started the war of liberation, with fatal results for himself. His son Kamose continued the war with some success, as we know from two contemporary records, but the real liberator of Egypt from the foreign yoke was Kamose's brother Ahmose, who carried the war right to the gates of Avaris, the Hyksos' capital. When Avaris was finally taken, the Hyksos withdrew to Palestine and made the city of Sharuhên (Joshua 19:6) their stronghold. This city was also taken after a three-year campaign, or after three annual campaigns (the record is ambiguous). Then the Hyksos were driven to the north, where they disappear, although it is possible that the wars of Thutmose III a hundred years later were still fought against the remnants of the Hyksos.

The New Kingdom—Eighteenth to Twentieth Dynasty.—Since the historical period of this article terminates at the end of the 15th century B.C., only the history of Egypt under the earlier Eighteenth Dynasty kings, of the 16th and 15th centuries B.C., will be reviewed here. A discussion of the last kings of this dynasty, of the Amarna period, will be found in Volume II.

There is no break between the Seventeenth Dynasty liberators and the powerful Eighteenth Dynasty, but since pre-Christian times the Eighteenth Dynasty has been counted from Ahmose, brother of Kamose, traditionally counted the last king of the Seventeenth. The first four kings of the new dynasty, Ahmose, Amenhotep I, Thutmose I and II, reigning altogether about 65 years (about 1570-1504 B.C.), were kept busy

consolidating their kingdom and organizing the country into a political and economic unit. Only Thutmose I had time to carry out military campaigns of any consequence. He reconquered Nubia, which had become independent during the Hyksos period, and also made a campaign to Palestine and Syria. He penetrated as far as the river Euphrates, which is described in Egyptian texts as “that inverted water which goes downstream in going upstream,” because the Euphrates flows in a direction almost opposite from that of the Nile.

Some early Eighteenth Dynasty king, perhaps Amenhotep I or Thutmose I, was probably the “new king over Egypt, which knew not Joseph” (Ex. 1:8), the Pharaoh who in the spirit of nationalism viewed the Semitic Israelites within his borders with suspicion and hatred, and started the oppression that finally resulted in the Exodus.

After the short reign of Thutmose II, fourth ruler of the Eighteenth Dynasty, Hatshepsut, his widow, who was the daughter of Thutmose I, came to the throne and ruled Egypt with a strong but peaceful hand for a little more than 20 years (1504-1482 B.C.). She was forced by a temple revolt to accept as coregent her nephew Thutmose III, a minor priest in the Amen temple, but she succeeded in keeping him in the background for a long time. The years of her reign were peaceful and prosperous. She sent trading expeditions to Punt, which was probably Somaliland, and exploited the mines of Sinai and Nubia for copper, turquoise, and gold. She built at Deir el-Bahri in western Thebes the grandiose mortuary temple that is still considered the most beautiful of all Egyptian temples, and she erected a number of the highest obelisks that ever pointed skyward in the land of the Nile.

Bible chronology and the historical circumstances seem to agree that Hatshepsut may have been the foster mother of Moses. She may have intended to make her adopted son her successor, since she bitterly hated her nephew Thutmose III, as the records clearly show. However, she may have realized very soon that such a plan would have little chance of success against the determined opposition of the powerful priesthood of Egypt. Whatever may have been her plans, the priests took care that Thutmose III, one of their protégés, was placed on the throne, although their only accomplishment was that he was tolerated as a coregent as long as Hatshepsut lived.

Hatshepsut’s end, after a reign of more than 20 years, is wrapped in mystery. Whether it came by a natural death or by violence is a matter of speculation. Her body has not yet been found, and may have been destroyed, as were her monuments and inscriptions. The new king did everything possible to eradicate the memory of his hated aunt and former coregent as soon as he came to the throne.

Thutmose III, reigning for about 33 years (1482-50 B.C.), became the greatest monarch of the New Kingdom. In a military campaign to Palestine and Syria during his first regnal year he defeated, in the famous battle of Megiddo, a coalition under the leadership of the prince of Kadesh. This was the first battle of antiquity of which a detailed record survives. Thutmose subdued all Palestine and Syria; he made the cedar forests of Lebanon crown properties; he placed garrisons in the principal cities of Western Asia; he appeared in person almost every year in his foreign domains to demonstrate his power and to discourage any aspirations toward independence or rebellion. The wealth of Asia poured into Egypt in the form of tribute, which was used for huge building projects such as temples, palaces, and fortifications.

Amenhotep II (1450-1425 B.C.), the son of Thutmose III, who was probably the Pharaoh of the Exodus, was a great sportsman who excelled in archery, hunting, and water sport, but he was also a merciless and cruel ruler. Several military campaigns are recorded of him, necessitated by revolts in different parts of the empire. All attempts of the subjugated nations to regain independence were quenched with ruthlessness and terror. Amenhotep was succeeded on the throne by one of his younger sons, Thutmose IV (1425-1412 B.C.). There is evidence that the new king had originally not been appointed as his father's successor, but had unexpectedly received this honor. This unexpected elevation to the office of crown prince would be explained adequately if his elder brother, the heir apparent, had been killed in the tenth plague (Ex. 12:29).

Conditions in the Egyptian Empire at the Probable Time of the Exodus.—Egypt was at its political height under the Eighteenth Dynasty kings in the 15th century B.C. It was united under one strong monarch, and enjoyed the national prestige that the nation had won through the expulsion of the Hyksos and the building of an empire extending deep into Africa as well as into Asia. The Eighteenth Dynasty kings being descendants of the liberators of Egypt from a foreign yoke, they were revered and cherished more than any kings had been before. This accounted also for the stability of the dynasty, which lasted for about 250 years.

Nubia was a valuable part of the empire, since it possessed rich gold mines, producing so much gold that the wealth of the Pharaoh in regard to this precious metal became legendary. The kings of Babylonia, Mitanni, and Assyria begged for gold in almost every letter in words like this: "Let my brother send gold in very great quantity without measure ... for gold is as plentiful as dust in my brother's land." Nubia, being administered by a viceroy called the "King's son of Kush," furnished also cattle, hides, ivory, and semiprecious stones; hence it was an important possession.

Palestine and Syria had become part of the Egyptian Empire in the time of Thutmose III. In these countries the native princes were allowed to keep their thrones, but Egyptian garrisons were placed throughout the country in strategically located cities. High commissioners, as the representatives of the crown, kept a watchful eye on the movements and behavior of the different local princes. They also received and transmitted the annual tribute, which produced a continuous flow of the wealth of Asia into Egypt, as cedarwood, olive oil, wine, cattle.

The copper mines of Sinai were intensively exploited, and trade relations were kept up with Cyprus, Crete, and some of the Ionian islands. With the kings of Babylonia, Assyria, and Mitanni the Egyptian Pharaoh had good relations, these kings calling one another "brother."

Egypt's supremacy in Syria and Palestine was unchallenged, and the people of the Nile country had never felt more secure and powerful than during this period. The inflow of riches from foreign countries made it unnecessary to lay heavy burdens on the Egyptian citizens, and for the first time in the history of Egypt a standing army was organized, largely from foreigners, replacing the people's army that had served the king from time immemorial during the seasons when no field work required their attention. When the native citizens were freed from their traditional service, in the army or in public works, their places had to be filled by slaves who were supplied through the military campaigns in foreign countries. The need for foreign slave labor was also one of the

motives for oppressing the Hebrews, who lived in the eastern Delta, and for stubbornly refusing to allow their departure.

The cultural life of Egypt had reached a high level. The various temples built during that time show a refined artistic and architectural taste. Craftsmanship was highly developed, and beautiful objects of art were produced during the Eighteenth Dynasty, as the rich contents of King Tutankhamen's tomb show. Astronomical, mathematical, and medical texts reveal that the sciences flourished; thus Egypt could justly claim that it was not only the most powerful nation of its time but also the most civilized country.

Such were the conditions in the country where the Hebrews lived during the time of their oppression, and the cultural achievements with which they became acquainted during their stay in Egypt.

Bibliography

Ancient history is based on the findings of archeology discussed in the previous chapter. Hence the literature referred to at the end of that chapter has a definite bearing on the history of antiquity. Many books on ancient history dealing with the period discussed in this article are out of date because during recent decades our historical knowledge has made many advances. This is especially true since older works are based on a too-high chronology, which has been changed rather radically to much later dates for the early period. It is with these reservations in mind that the following books on ancient history are listed.

The Cambridge Ancient History (3d ed.). Edited by I. E. S. Edwards and others. Vol. I, Part 1: *Prolegomena and Prehistory*; Part 2: *Early History of the Middle East*. Vol. II, Part 1: *History of the Middle East and the Aegean Region, c. 1800-1380 B.C.* Cambridge: University Press, 1970-1973. The complete 12-volume work, with each chapter written by a specialist, is the most exhaustive ancient history available.

GARDINER, ALAN H. *The Egypt of the Pharaohs*. Oxford: University Press, 1966. A non-technical survey covering the period from the Old Kingdom to the time of Alexander the Great.

GURNEY, O. R. *The Hittites* (rev. ed.). Baltimore: Penguin Books, 1961. An up-to-date treatment of the history, art, achievements, and social organization of the Hittites.

STEINDORFF, GEORGE, and SEELE, KEITH, C. *When Egypt Ruled the East* (rev. ed.). University of Chicago Press, 1957. An authoritative and up-to-date history of the Empire period of Egypt.

WILSON, JOHN A. *The Burden of Egypt*. Chicago: The University of Chicago Press, 1951. 332 pp. A good, well-written cultural history of Egypt to the end of the Empire period.

Daily Life in the Patriarchal Age

I. Sources of Information

THE reconstruction of the modes of daily life in the ancient world requires a piecing together of evidence from many different sources. In Egypt painted tomb pictures or reliefs vividly depict the habits of people of all walks of life, their dresses, tools, furniture, houses, and also the different occupations of life. In Mesopotamia the source material is of a more limited nature. Pictures on cylinder seals, statutes, and reliefs provide some of the information needed for a description of the habits and customs of that country. Other evidence comes from legal, religious, and business documents. Of great value also are the objects preserved in the ruined sites of the Near East, as household vessels, tools, weapons, toilet articles, jewelry, and other objects of daily use.

The following description is based on this manifold source material. It should be remembered, however, that the evidence for some periods and areas is richer than for others, and some gaps in our knowledge still remain. When we speak of the habits and customs of the people in the patriarchal age, we mean the time from about 2000 to 1500 B.C. Habits were not always the same, during these 500 years, nor were they the same in every area. However, the ancient world did not experience such drastic changes as the modern world has been as a result of the remarkable inventions and discoveries of the last two centuries.

Although small changes in cultures are noticeable in the different ages of antiquity, life was essentially the same during many ages. If a man of the 15th century A.D. should rise from his grave today, he would hardly recognize the world in which he once lived. He would notice radical changes in every detail of life, in the systems of transportation, communications, the mode of writing, printing, household appliances, living conditions, dress, medical care, and social conditions. In the ancient Orient this was not so. A man of the 20th century B.C. suddenly placed in the world of the 15th century B.C. would certainly see some strange things he had not known, such as the horse and chariot, and a few weapons and tools, but he would be able to adapt himself to the new situation within a few hours. In fact, he would not feel too much out of place in some parts of the ancient East even today. For this reason the description of the daily life of the people living in the patriarchal age as presented in this article applies rather uniformly to the whole period under discussion. Since, however, the two main cultures of antiquity, the Egyptian and the Mesopotamian, differ markedly from each other, they have to be treated separately.

Palestine and Syria have not furnished much source material for the subject under discussion, because of the almost complete absence of pictorial evidence. The description of the daily life in these countries during the patriarchal age depends therefore largely on archeological evidence, and analogies from Egypt and Mesopotamia, which have fortunately provided pictures and descriptions of the Palestinians.

II. In Egypt

The following description of the daily life of the Egyptian peasant, craftsman, and nobleman reflects conditions of the time of Moses in the Empire period, which were not much different from the conditions, customs, and habits found in the time of Abraham in the Middle Kingdom.

The Peasant.—The great majority of Egyptians were peasants. They either possessed a tiny piece of land from whose produce high taxes, usually 20 per cent, had to be paid, or served a rich landlord, a temple, or the king, by tilling the soil, and being fed by the one for whom service was performed. It is this great mass of ancient Egyptians of whom we have hardly any records. They were an inarticulate group. They had no scribes to tell their story of joy and woe to later generations in literary writings, no means to build tombs whose wall pictures would tell their life story. What we know about the great majority of Egyptians comes from the remarks and pictures of the higher-class people who mention their less-privileged compatriots or depict their life only as much as it had any relationship to themselves.

The life of the ordinary man of ancient Egypt was very simple. He lived in a small hut, built of mud bricks, with a flat roof consisting of layers of clay put over some beams of acacia wood and matting. One opening served as a door, some smaller ones as windows. Reed matting that could be rolled up guaranteed a certain degree of privacy in the house. These houses did not have much furniture. However, most people had a bed, consisting of a wooden frame on four legs. Strips of leather stretched crosswise over the frame served as a mattress, and a headrest made of wood or baked clay, as cushion. Some houses had low chairs and small tables, perhaps a wooden box in which some valuables could be kept, and a spare piece of cloth as a garment.

Most of the remaining inventory of an ordinary peasant's home consisted of pottery, cooking pots, jars serving as containers for water, grain, legumes, or other foodstuff. The family possessed also a wooden comb with long teeth, two millstones for making flour,

and some simple tools for the work in the field, like a wooden plow, a few bronze sickles to harvest the grain, and a knife made of the same metal. Then there were nets to catch birds in the marshes, and a simple loom on which the womenfolk did the weaving.

A white loincloth for himself—the standard dress of all Egyptians from the king to the peasant—and long, white dresses for his wife and daughters were all that the average poor Egyptian needed by way of garments.

The peasant's life was a continual struggle to keep alive. When the inundation of the Nile began in late July, the dams surrounding each field had to be kept under repair. Perpetual vigilance was necessary to make sure that every field got enough of the precious, muddy water saturated with fertility-laden soil from the Abyssinian highland. Then the fields were sown; and as soon as the Nile level fell, water was pumped by means of the water sweep to irrigate the fields with the minimum necessary for successful growth. This work had to be done until the harvest season, which was finished by March.

As soon as the harvest was brought in, the peasant usually had to leave his family to serve his king for several months until a new sowing time would require his return. He would become a soldier in the army and take part in a campaign, or would be employed in public works, perhaps in the quarries to produce the stone blocks needed for temples, palaces, or government buildings, or would be engaged in transporting the building material to the site where it was needed. From the end of March to August practically the whole male population of Egypt was engaged in the king's service. If the poor peasant was on a foreign campaign and could not return in time to take care of his fields, his wife and children had to work doubly hard to fill the place of the missing husband and father.

However, the average Egyptian seems to have been satisfied with his lot, as can be deduced from the fact that there were hardly ever any revolts against the existing social order. As long as he was able to fill his stomach with bread made of emmer (wheat), have his favored dishes made of barley, lentils, onions, and garlic, occasionally some meat, and his thin beer, he was content.

The daily routine was frequently broken by festivities connected with the religion of the Egyptians. On such occasions processions of priests with their shrines and gods could be watched, and also cheap amusements, like wrestling—a much favored sport among the Egyptians—or acrobatics, usually performed by girls.

The Professional.—The life of the professional craftsman was different, whether he was a carpenter, stonemason, draftsman, painter, sculptor, or scribe. He lived in the city, worked either for the king, wealthy government officials, or a temple, had a better house than the peasant, better furniture, and a greater variety of food, since his pay allowed him some luxuries. However, even these people have not left us many records about their own life, since they were working for others, and with few exceptions did not have the means to build tombs in which their life story would be depicted and their memory perpetuated. They were happy if they could afford to set up a stele on which their life story was briefly recounted.

The Aristocracy.—Aside from the royal family, the most privileged people in ancient Egypt were the government officials and the priests. Most of them were wealthy and possessed beautiful estates with palatial homes. An aristocrat's house, usually surrounded by a high wall, consisted of bedrooms, a living room, a bathroom, and an outside kitchen detached from the house, with quarters for the servants and a storage house. Within the walls was a well-kept garden in which was a pool, surrounded by

symmetrically planted trees, and flower beds. The noble Egyptians were lovers of beauty, symmetry, and nature.

The bed of the nobleman differed little from that of the poor man, but was made of better wood, had legs carved in the shape of lions' paws, and was perhaps inlaid with bone or ivory. It was usually only four feet long, since the Egyptians slept with their legs drawn up, and thus felt no need of full-sized beds. Their headrests were carved out of wood or made of stone. Soft cushions were unknown to the Egyptians, perhaps also to the people of ancient Palestine. Hence it was probably no hardship for Jacob to use a stone as a headrest during the night he spent near Bethel on his way to Haran. The beds stood inside a kind of tent structure, over which thin curtains were placed to keep the mosquitoes out. A low chair, some boxes containing the family's possessions in linen, and a dressing table with the lady's cosmetics, eye paint, rouge, a bronze razor, a metal mirror, and a casket for jewels—these constituted the rest of the bedroom furnishings.

The bathroom and toilet had a screen wall from behind which a servant could pour water over the person standing in the bathroom on a hollowed-out floor slab that had a drainage into a basin set at a lower level, usually outside the house.

The living room did not possess much furniture. A few carved wooden chairs with low backs and one or two tables were probably all that the living room contained. The people sat at the table to eat. They also played games resembling chess, while sitting at the table.

The clothing of the noble Egyptian was also very simple. Usually he wore only a loincloth, made of the fine Egyptian linen famous for its quality throughout the ancient world. It was immaculately clean, and the front part was starched. In fact, it was washed, starched, and smoothed by the washing servant every day. The wealthy Egyptian also had a long, tuniclike garb with short sleeves, and a certain number of white dresses for official functions. He wore sandals, and usually carried a staff as the sign of his authority. On official occasions he wore a wig. Most of the noblewomen wore dresses made of one piece of very thin material that inadequately concealed their bodily features, of which the Egyptian women seem to have been proud. The fabric was so fine that a lady's dress could be drawn through a finger ring.

The days of the Egyptian noble were spent in performing his official duties, either in the temple, if he was a high-ranking priest, or in his office, if he was a judge, mayor of the city, or head of a district (nomarch). However, these duties left him enough time to inspect his farms, the different workshops where his servants were engaged in brewing beer, making wine, baking bread, butchering oxen, and performing other menial tasks. Since the building of the rich man's tomb went on for many years, he frequently inspected the progress of the workmen who did the excavating, the cutting of reliefs, the drawing and painting of inscriptions, and the many other details connected with the building of a tomb.

During the Old Kingdom, in the third millennium B.C., most noble Egyptians built their tombs near the pyramids of their kings. Such tombs consisted of a tomb chamber dug into the ground and an elaborate structure above ground which served as the tomb chapel. Some had one room, some many rooms. The reliefs covering the walls tell of the everyday life of the owner, which, he hoped, would be perpetuated in a magical way after his death through the efficacy of these wall pictures. For us the pictures are of great

importance, since they illustrate his life from the cradle to the grave, and are a main source of knowledge regarding Egyptian culture.

From the Middle Kingdom onward (2000 B.C. and on) most tombs were hewn out of the rock cliffs of the western desert. They usually consisted of tunnels and chambers of many shapes and designs. The entrance was in a porch hewn out of the living rock, with columns supporting the roof. A narrow hall led into one or more chapels and from there on to the place behind which the actual tomb chamber, containing the embalmed body of the tomb owner, was situated. He lay in his coffin made of thick wooden boards, richly painted. All the walls of the tomb chamber, the chapels, and halls had on them either paintings or sculptured reliefs, which were also painted.

Every owner of such a tomb made provision during his life for the proper continuation of the mortuary cult after his passing. He endowed his tomb with fields and servants who were to bring the produce to the mortuary priests. These priests had to perform the prescribed daily rites and bring the necessary offerings in food, drink, and incense, so that the deceased would enjoy life in the hereafter as he had wished to do while he was still alive. In orderly and prosperous times the mortuary cult for some tombs was continued without interruption for centuries, but in other periods the care of tombs and the performance of mortuary duties were neglected very soon after the tomb owner's death.

The wealthy Egyptian also had a small fleet of Nile boats which he needed for traveling. Egypt had no roads. The Nile was the artery of communication. When the official had to make a trip to visit the court, or to visit the area over which he ruled, he had a boat with cabins, in which he found many of the comforts of his home. Other boats followed him with supplies and servants. One contained a kitchen, where his meals were prepared, and another a bakery, from which he obtained his daily dainties.

For his recreation the noble Egyptian engaged in fishing and hunting, as the many pictures in the tombs indicate. Fishing was done by means of spears from a flatboat, and the hunting of birds by means of throw sticks or clapnets in the marshes.

Social gatherings were not infrequently held in the homes of the rich. Friends were invited to view wrestling performances between men and the acrobatics of women. An orchestra consisting of 22-stringed harps, 6-stringed lyres, 3-stringed lutes, double reed pipes, and tambourines provided gay music to which thinly clad girls danced. All guests, servants, and performers wore on their heads a cone of perfume, which melted and filled the garments of all present, as well as the air, with a heavy perfume. Bouquets of fresh flowers were seen everywhere, and a host of servants provided the guests not only with all the dainties that Egypt produced but also with great quantities of beer and wine. At the end of these parties the guests had to be assisted, or even carried, to their homes.

Slaves.—Slavery did not play such a great role in ancient Egypt as in some other countries. However, slaves were found in all households of rich and noble Egyptians. The foreign wars brought to Egypt many prisoners who became slaves. Generally speaking, many of them fared well in Egypt and as household servants had an easier life than they had known as free citizens in their home countries. In fact, many of them lived an easier life than the Egyptian peasant, some of them coming to wealth and honor. The Twenty-second Dynasty kings of the 10th century, for example, were the descendants of Libyan slaves who had advanced first to full-fledged citizens, then to local rulers and army commanders, and finally to the occupancy of the throne.

Religion.—It is possible here to deal only in a cursory manner with the religious beliefs of the Egyptians. The Egyptians were polytheists, believing in the existence of a host of gods who were supposed to have various functions. The sun-god Ra, later Amen-Ra, stood at the head of the gods. His secretary, Thoth, recorded human actions. The other gods had their duties divided between them, one being the patron of the Nile, another of the land, one was the god of the dead, another was the patron of women with child. The ruling god of Egypt, however, was a human being, the Pharaoh, called “the good god, Horus.” He was considered to be the bodily son of Ra, reigning over Egypt as the visible representative of the family of invisible gods. All gods were thought to possess very human traits, and were able to hate and love, to injure and kill, and in turn to be wounded and killed. Many of the gods were pictured as having the features of animals, and the animals to which the gods were likened were therefore held sacred in places where these gods had temples. The cat, for example, represented the goddess Bastet, Amen was represented by a ram, Hathor by a cow, and Heket by a frog.

The religious duties of the Egyptians consisted in helping to build and preserve temples, in supporting their numerous personnel, and in sharing the expenses of the daily offerings, the sacred feasts and processions. All activities of life were regulated by hopes and fears connected with the life in “the west,” the hereafter. It was thought that any good deed done for the well-being of a deceased person would not only benefit the recipient of the gift but later also the one who had performed the pious mortuary duty.

That the ancient Egyptian was aware of his moral obligations toward his fellow man and his gods is evident. This is evident from the negative confessions contained in the Book of the Dead, a magical document which was placed in the coffin of the deceased and which was regarded as a passport to the other world. The Egyptian believed that after death he would have to appear before 42 judges, who could investigate whether he was ready to enter the world of the blessed dead. This readiness was determined by the manner of his earthly life. He was supposed to be prepared to give correct answers to the 42 investigators, for he carried with him the answers, written on papyrus. To the first judge, he would say, “I have committed no sin,” to the second, “I have not robbed,” to the third, “I have not deceived,” etc. In the course of this thorough investigation he would deny that he had killed, stolen, used false scales or weights, been quarrelsome, committed any immoral acts, or done anything against a temple or a god, in other words, that he had been blameless.

That the Egyptian’s life was not in harmony with his ethical and moral knowledge is known from the complaints of the poor, and occasional documentary references to all kinds of injustice that was done, everywhere. However, the Egyptian thought that the Book of the Dead, with its magical formulas, provided a remedy for his sins and guaranteed an admittance to the better world. It was also thought that the mortuary cult, with its offerings and its care of the body, had a magical effect on the well-being of the deceased.

The Egyptian did not believe in the resurrection of the body. He believed, however, that the care of the body in this world, the bringing of offerings, and the performance of certain rites would be beneficial for the deceased in the other world. Precautions were taken to guarantee the well-being of the deceased in case the living neglected their duties in this matter. Imitation offerings were carved in the tomb walls, and all desires of the deceased were recorded in inscriptions. It was thought that these reliefs, pictures, and

texts would be sufficiently reliable substitutes for any missing mortuary rites, in case of need.

Life in the other world was believed to be a continuation of the life on earth, with this difference, that all unpleasant experiences of the former life, like sicknesses, disappointments, or misfortunes, would not be repeated. For this reason the pleasant phases of the daily life of the tomb owner and his family were described in all details by means of paintings or reliefs, but never any sicknesses or other unfavorable circumstances that might have crossed his life's pathway were portrayed. We know, for example, from surgical papyri, and through the evidence from the mummies, that the ancient Egyptian surgeons successfully performed all kinds of operations, but none is ever depicted in a tomb or temple, with the exception of circumcision, which apparently was considered to be a religious performance, as among the Israelites.

III. In Mesopotamia

The foregoing description of the Egyptian daily life reflected primarily the conditions, habits, and customs of the 15th and 16th centuries B.C., from which period a wealth of illustrative and documentary material is available. For a description of the daily life of the Mesopotamian citizen, the 18th century, the time of Hammurabi, is chosen. Hammurabi's law code allows us to obtain a clearer picture of the social conditions existing at that time, than at any other period in the patriarchal age. Also, for this period a greater amount of source material is available in the form of letters and economic texts, than for the time of Moses, when Mesopotamia was ruled by comparatively weak Babylonian, Assyrian, and Mitannian rulers.

Three Classes.—The population of Mesopotamia during the patriarchal age consisted of three classes: (1) the western Semitic, or Amorite, nobility, to which also belonged the royal house, (2) the free citizens of the Semitic and Sumerian populations that had lived in the country from the time preceding the Amorite conquest, and (3) the slaves, mostly foreigners. The first class was politically and financially, the second numerically, the strongest. However, the number of slaves may at no time have been much less than that of the free citizens of the country, since Mesopotamia had always a very great number of slaves. In Egypt the only ones who had slaves were the rich, and some veterans, to whom prisoners of war were given as a reward for bravery; but in Mesopotamia, where a slave's price was only about 40 shekels (about \$12) almost every citizen had one or more slaves for his field work, the performance of household duties, and unskilled and skilled labor.

The preservation of the ancient Mesopotamia codes of law enables us to understand rather well the social position of the different classes of society. The fact that the severity of the penalty for injuring or wounding certain citizens depended on their social status shows clearly the difference in value attached to different members of society.

Slaves had naturally less rights than the two classes of citizens, although the law gave them certain rights. They were, for example, allowed to accumulate some property, which in time might be large enough to provide the price of their release. They had the right to marry a free citizen, and the children born of such a union became free citizens. The continual wars of conquest of the Babylonian kings provided a constant stream of foreign slaves, who usually came to the country as prisoners of war. The whole economy of the country was based on the cheap labor performed by slaves; consequently the free population of the country enjoyed a comparatively high standard of living.

Agriculture.—Most of the land belonged to the crown, the temples, or to rich merchants. These owners rented it out to tenants, who had to pay one third to one half of the crop as rent for the fields, although the owner had to advance the seed corn. Every tenant was forced by law to cultivate the land under his care, or to compensate the owner for the loss of his share in the crop. Almost all field work was actually done by slaves, though all tenants were free citizens.

The main agricultural products of Mesopotamia were barley, wheat, and dates. The fields producing wheat and barley were worked with primitive plows. These wooden plows, similar to ones still in use today in some parts of the Near East, are depicted on ancient reliefs and seals. They were drawn by oxen, and had a funnel attached to them through which the seed was channeled into the furrows at the same time that the field was plowed.

The date palm growing luxuriantly in the alluvial soil of Lower Mesopotamia was one of the chief sources of the country's wealth. Its fruits provided one of the Babylonians' principal articles of diet, its sap yielded palm sugar, its fibrous bark was suitable for weaving ropes, its trunk furnished light but tough building material, and last but not least, its sap could also be converted into a highly cherished beverage. The planting of date orchards was therefore encouraged by the state. Empty pieces of land were given out for this purpose, and the citizen could obtain such a field without paying the yearly rent. He would plant and tend it for four years, but in the fifth year of his tenancy the original owner of the land would receive half of the garden as payment.

Since the rainfall of Mesopotamia is deficient for the agricultural needs of the land, irrigation canals crossing the country in all directions were constructed. They were automatically fed with the waters of the Euphrates and the Tigris during the period of high water in the spring. However, as soon as the level of the rivers subsided, there began the toilsome task of raising the water from the lower river to the level of the higher-lying canals. This was done by means of water sweeps, worked by hand, through primitive irrigation machines operated by oxen, or by light water wheels. All three methods of bringing precious irrigation water to the fields are employed in Iraq even today. Since the river water contained much silt, which sank to the bottom of the canals, raising in this way their beds, the canals had to be repeatedly dug out. This silt was thrown out on both sides of the canal banks, which in due time became so high that it was difficult to put the silt on them. Then new canals had to be dug. For this reason one sees today remains of old canal banks running parallel to those of later times. It was the duty of local governors to take care that the canals were kept in good repair. These officials had the right to requisition people from villages or fields that lay in close proximity to portions of the canal that needed repair or cleaning. In return for this work the villagers had the right to fish in those sections of the canals that were under their charge. Fishing in strange waters was prohibited. Fishing by line and net was a regular industry; hence the preservation of rights in local waters was jealously guarded.

Although river traffic was not the exclusive means of transportation, as in Egypt, it was nevertheless a very important branch of the economy of the land. For short distances a round vessel, called a gufa today, was used. It was made of wickerwork coated with bitumen. Larger boats were rafts made of animal hides blown up with air. They have also continued to be used, and such a float is now called a kelek. Also the use of log rafts and

of real barges is attested in ancient records. The wages of boat builders as well as of boatmen were regulated by law.

Commerce.—The Semitic population of Mesopotamia were always engaged in commercial enterprises with their neighboring countries, Elam in the east, Asia Minor and Syria in the west, Palestine and Egypt in the southwest. This international commerce led to a considerable growth in the size of the cities. Caravans connected the different parts of the known world, and brought to Mesopotamia the products of other lands. The beast of burden was almost exclusively the donkey, since there were few horses, and only a small number of domesticated camels before the middle of the second millennium B.C.

The merchants in the cities had settled agents in foreign countries, and traveling agents who journeyed with the caravans between Mesopotamia and other lands. Profits were equally distributed between the merchants and the agents. All agreements were made in written form, and duly witnessed and sealed. Mesopotamia exported textiles, dates, cylinder seals, lapis lazuli, but imported copper from Asia Minor, silver from Cyprus, fine pottery from Syria, as well as olive oil and cedarwood.

Town Life and the Home.—Towns and cities were planned in a scientific way throughout the patriarchal age. Streets were not entirely straight, but all thoroughfares ran through, and city blocks were of fairly regular sizes. All private houses were soundly built of sun-dried bricks, but rested on foundations of baked bricks. All houses were required by law to be kept in good repair. Builders were held responsible for the quality of construction. If a house collapsed and injured or killed someone, the contractor was punished. In some parts of the country houses were only one story high; in other parts most houses were two-story buildings. The Mesopotamian houses in general had an open courtyard in the middle surrounded by different rooms. Two-storied buildings had the bedrooms on the second floor, which could be reached by means of a stairway. This stairway led also to the roof, which was used for sleeping purposes during the hot season. Some of the larger cities like Ur and Babylon had regular sewage systems, of clay pipes, to which private houses were connected.

The furniture of the ancient Mesopotamians is not so well known as that of Egypt, since the damp climate has not preserved any actual specimens. Only royal palace furniture is depicted on the reliefs, usually only a throne or a couch. Pictures on cylinder seals which occasionally depict some furniture are too schematic, so that one cannot recognize any details. Hence, the reconstruction of the interior of an average Mesopotamian house is still impossible. However, it can be said that the people of the Euphrates and Tigris valley did not recline at the tables as was customary among the Greeks and Romans, but sat on chairs, as was also the custom in Egypt.

The Mesopotamian dresses covered much more of the body than the garments of the Egyptians. Most of the dresses were made of wool, but in the Assyrian region linen was also fabricated. Most people wore long garments that neatly fitted the body, and a robe-like outer dress. The latter usually had embroidered fringes with the colors red and blue dominating. Sandals were made of straw or leather, and the headdress was usually a woolen cap.

Family life, along with everything else, was regulated by law. This applied to marriage, divorce, adoption of children, inheritance, and the rights of widows. It is a remarkable fact that the ancient Babylonian law gave to women considerable rights, and a certain degree of independence.

In Babylonia and Assyria the majority of government officials were drawn from the Semitic nobility. Governors of provinces and districts, mayors of cities, judges, tax collectors, soothsayers, and physicians belonged to this favored class of people. Although certain privileges were allowed to these people by law, they had to act, rule, and work within the confines of the law. Every citizen had to serve his king as a soldier at certain times, and was bound to make provision for his family in such emergencies.

Religion and Belief in the Afterlife.—The religion of the Babylonian people was polytheistic. Marduk as the creator god was the titular head of all the gods, and received the greatest honors in the official cult. However, many other gods, like Sin, the moon-god, and Ishtar, the goddess of love and fertility, possessed many temples and cult places. Every man had his favored god, and presented his prayers mostly to that god, although he might include some others in a general way, in order not to offend any by neglecting them. The following Babylonian prayer may serve as an example:

“O my God, who art angry, accept my prayer, O my goddess, who art angry, receive my supplication. Receive my supplication and let thy spirit be at rest. O my goddess, look with pity on me and accept my supplication. Let my sins be forgiven, let my transgressions be blotted out. Let the ban be torn away, let the bonds be loosened. Let the seven winds carry away my sighs. I will send away my wickedness, let the bird bear it to the heavens. Let the fish carry off my misery, let the river sweep it away. Let the beast of the field take it from me. Let the flowing waters of the river wash me clean.”

Among the ancient Babylonians there was a real consciousness of sin. They sensed the consequences of sin and its attached guilt much more than the Egyptians, who gave themselves the air of being innocent. This can be seen from the written prayers, such as the one quoted above, in which the deity is asked for mercy and forgiveness, and also from questions which were asked concerning the causes of misfortunes they saw falling upon men. Questions like the following were asked:

“Has he estranged the father from his son or the son from his father? Has he estranged the mother from her daughter or the daughter from her mother? ... Has he refused to set a captive free? Has he shut out a prisoner from the light? Has he committed a sin against a god or against a goddess? Has he done violence to one older than himself? Has he said yes for no or for yes? Has he used false scales? Has he accepted a wrong account? Has he set up a false landmark? Has he broken into his neighbor's house? Has he come near his neighbor's wife? Has he shed his neighbor's blood?”

These examples reveal clearly that the nature of sin and its evil consequences were not unknown to the ancients, and that Paul was right in asserting that gentiles “shew the work of the law written in their hearts, their conscience also bearing witness, and their thoughts the mean while accusing or else excusing one another” (Rom. 2:15).

As was true of most ancient nations, the people of the Mesopotamian valley believed in a form of life after death. They held that the power of death extended over mankind, plant and animal life, and the gods. However, they thought that death was the result of man's natural constitution, a law divinely ordained at the time of man's creation, even as they thought that sin was part of man's original nature. They believed that man was created from a mixture of clay from the earth, made of Tiamat, and the blood of Kingu. Since both Tiamat and Kingu had been evil gods before they were killed, it was only natural that man was evil from the beginning, since he was made of two substances coming from evil gods. In this way man threw indirectly upon the gods the blame for his sinful nature.

It was also believed that in death the spirit was transferred from one mode of life or existence to another, but the well-being of the spirit of the dead depended on the care that the body received on earth. As death could be hastened and life shortened through sins,

death could be postponed and life lengthened through pious acts, and the exact fulfillment of one's duties toward the gods. However, there was no escape from death for anyone or by any means. The dwelling place of the departed was considered to be in the interior of the earth. But about the conditions of the afterlife there existed much vagueness and confused thinking. Although the Babylonian stories include references to the resurrection of some ancient heroes, who again died after a short time, the ancient Babylonian had no belief in a future resurrection of the body.

IV. In Palestine

It is difficult to describe the daily life of the people of Canaan during the patriarchal age, since we know so little about them. Hardly any written records of Palestine come from that period, and the few that have been found are very short. Hence, we are able to describe, with any degree of accuracy, only a few phases of Palestinian life before the 15th century.

The Population.—The population of Palestine in the first half of the second millennium consisted of people who lived in small towns and little villages, and of nomads who lived on the fringes of the fertile country, and moved from place to place in search of pastures. Most towns were protected by well—built walls, and seldom had more than one gate. With the exception of some of the ports like Byblos and Ugarit in Syria, and Gaza in Palestine, the cities rarely covered more than 15 acres.

The ruling class throughout Palestine during the patriarchal age consisted of Amorites, whose mode of life was probably not different from that of the dwellers in Mesopotamia. They naturally lived in the cities, had control of the county, and may have owned much of the agricultural lands. Their houses did not differ greatly from those in Mesopotamia, which have already been described. However, the excavations have shown that most Palestinian houses were of smaller size than those of the Euphrates and Tigris valley. The professionals and peasants of Palestine belonged to the various tribes of the Canaanites.

For an understanding of the appearance, war implements, and clothing of these people a colored wall picture in the tomb of an Egyptian noble at Beni Hasan is instructive. It describes the arrival of 37 Palestinians, of whom 15 are actually depicted. These fair-skinned men and women, in marked contrast with the dark Egyptians shown in the same picture, are led by their chief. He bears the good Amorite name *'Abi-shar*, meaning "My father is king," and the title "Ruler of a foreign country." He and two of the other men who accompany him are shown wearing colorful garments that cover their bodies from the shoulder to the knees, but leave their arms and one shoulder free. The colors red and blue dominate in the woolen clothes of all men and women shown, but the chief's dress has the most elaborate pattern of all. Three of the other men are wearing only loincloths with a simple red pattern on a white background. Two men have long white garments. The four women shown in the picture wear colored dresses of a design similar to that of the costume of the men. However, their dresses are longer, reaching below their knees. The women's garments also show intricate patterns of blue and red figures woven into the cloth. A little boy wears a red loincloth only.

The men wear sandals, with the exception of the chief and one other man. These were probably made of leather, although this cannot be determined from the picture. The women and the little boy wear some kind of closed shoes or moccasins. Why the chief is shown barefooted while his entourage, with one exception, wear shoes or sandals is not

clear. All the men have dark hair, cut at their necks. They are also shown with pointed beards, but their upper lips seem to have been shaven. The women are shown with long, loosely worn hair, although a ring or band worn on top of the head prevented the hair from falling into their faces.

Some of the men, and also the boy, carry long spears; two men have large bows, and on their backs carry quivers with arrows. Several men have heavy throw sticks, and one carries a large ax. Two men carry skin water bottles on their backs; one plays on an eight-stringed lyre of a rectangular design. The donkeys used for transportation carry some of the family's children, and also some objects thought to be smiths' bellows. If they were actually carrying bellows, this would suggest that these Palestinians were perhaps professional workers in metal, although the accompanying inscription states that they were bringing to Egypt stibium, a desired cosmetic.

It can be seen from this description that the tomb picture of Beni Hasan gives us an excellent idea of the appearance of the Palestinian people, and we shall not be much amiss in picturing Abraham, who lived in the time when this picture was made, as being like the "ruler of a foreign country, 'Abi-shar," and Abraham's family and entourage as being like that of 'Abi-shar.

Agriculture and Cattle Breeding.—The majority of Palestine's population consisted of peasants. Whether they were the owners of their land or only tenants is not known. The main products of their country were barley, wheat, grapes, figs, and olives.

Agriculture in Palestine depended, not on inundation or irrigation water as in Egypt and Mesopotamia, but on the rain. The rain falling from October to April was therefore of decisive importance. The "early" rain comes in October and November, softening the ground sufficiently to allow plowing and sowing. The heavy rainfall of December and January soaks deeply into the ground and causes the crop to grow. The light showers of the "latter rain" in the springtime are necessary for a ripening of the grain. The volume of rain, and therefore also the fertility, depended on geography and topography. The western slopes of the mountains were fertile, but the eastern slopes were desertlike.

Wine was made in rock-hewn wine presses where the grapes were trodden by the feet of the vinedressers (see Amos 9:13). A channel led from the presses to a trough where the grape juice, *tirosh*, was collected. This was brought to fermentation by the addition of yeast, *shemer*. The finished fermented wine, *chemer*, was stored in large jars or amphorae.

Olive oil was also made in open-air presses hewn from the rock. In these presses, cuplike in shape, the olives were crushed by means of stones, and the oil was led through a channel to a collecting trough. This was used in the preparation of food (cf. Lev. 2), as medicine (cf. Isa. 1:6, margin), for anointing the body (Micah 6:15), and as fuel for lamps (Ex. 27:20). The olive oil was one of the main export products of Palestine and Syria, because the olive tree was foreign to the great civilized lands of Egypt and Mesopotamia, where great quantities of oil were needed.

The wealth of Canaan consisted not only in agricultural products but also in cattle, especially goats and sheep. From these came wool for weaving clothes, hides for skin bottles, sandals, and tents, milk for making butter and cheese, and meat for food and for sacrificial purposes. Cattle were apparently also exported, since references to Palestinian

cattle appear in Egyptian inscriptions. However, it is possible that cattle reached Egypt as spoil of war or as tribute.

Technical Accomplishments.—Palestine was tributary to Egypt during the greatest part of the patriarchal age. The annual tribute drained the land of its wealth and prevented the emergence of a high standard of living. Palestinian culture was therefore on a lower level than that of Mesopotamia or Egypt. This is seen in the inferior quality of its technical products. To mention two examples, excavations have shown that jewelry was of inferior workmanship and public buildings were never built as solidly as in Egypt or Mesopotamia. Even for the building of temples, palaces, or city walls, blocks of stone were only roughly dressed, and spaces between them filled with mortar and small stones. What is said of jewelry and building stones is also true of other objects of daily use. However, our knowledge is very fragmentary, since few such objects have survived, with the exception of a wealth of pottery.

Religion.—What we know of the Canaanite religion comes mostly from the age of the conquest and will be described in the second volume of this commentary. Probably the earlier religion did not differ much from the later brand. However, it may have been somewhat less immoral, as can be concluded from the Lord's statement to Abraham: "The iniquity of the Amorites is not yet full" (Gen. 15:16).

The remains of some simple two-room temples of the patriarchal age have been excavated in Canaanite cities, and also certain "high places," which were open-air sites dedicated to the worship of the gods. Altars, libation troughs, and standing pillars being either sun monuments or fertility-promoting *phalli erecti*, marked these Canaanite sanctuaries. The Canaanites had a pantheon of many gods. El was the father of the gods, Asherah his wife; of their children, Baal, the god of storms and fertility, gained the greatest fame, and his ferocious sister Anath as the goddess of war was also popular. Besides those mentioned, a host of other gods was worshiped. Religious duties consisted in the offering of bloody animal sacrifices on stone altars and the pouring out of wine before sacred emblems.

House idols, the so-called *teraphim*, seem to have enjoyed great popularity, because great numbers of these crudely shaped idols have been found in every excavation. Apparently every household must have owned them and believed in their profitableness. Included generally was a nude goddess, whose sex features were accentuated, since they were probably believed to promote natural fertility and prevent sterility.

Nothing is known of the moral concepts of the Canaanites of the patriarchal age, nor of their judicial practices, but it seems reasonable to believe that they were acquainted with the laws of Mesopotamia and perhaps followed them. This can be inferred from the fact that the Babylonian script and language were used in international correspondence in Palestine, and also from the fact that the ruling class in Mesopotamia as well as in Palestine were Amorites.

These were the people among whom Abraham journeyed, and built altars to the true God.

3

³Nichol, F. D. (1978). *The Seventh-day Adventist Bible Commentary : The Holy Bible with exegetical and expository comment*. Commentary Reference Series (Ge 1:1). Washington, D.C.: Review and Herald Publishing Association.

Weights, Measures, and Money Values in the Old Testament

THE study of ancient systems of weights, measures, and money values presents a confused picture to the student of the ancient world. As long as classical authors, Josephus, and other late writers were the only available sources of information on the subject, conversion of ancient values into their modern equivalents could only be tentative. More recently, archeological expeditions to the Near East have brought to light actual weights of metal and stone, in some cases with their names inscribed on them, pieces of money, and texts describing measures and money used. Hence we are in a much better position now than even a few years ago to understand ancient references to various commodities. There remain, however, gaps in our knowledge, as the following survey will show.

I. Weights

The talent. Equivalent to the Heb. *kikkar* or the Ugaritic *kkr*, meaning a “disk.” This name came from the fact that it was traded in the form of metal disks with holes in the center. The talents are thus depicted on Egyptian and Mesopotamian monuments. The Babylonian talent consisted of 3,600 shekels, whereas the Hebrew talent contained 3,000 shekels (see Ex. 38:25–27). The existence of this lighter talent has recently been attested from non-Biblical sources by a text from the north Syrian city of Ugarit (Ras Shamra) in which certain commodities are listed, which total 6,600 shekels. Since the total is given as “two talents, 600 shekels,” it is evident that a Syrian talent equaled 3,000 shekels (*Syria*, vol. 15 [1934], pp. 137–141).

The mina. From *maneh*, usually translated “pound” in the KJV (1 Kings 10:17; Ezra 2:69; Neh. 7:71, 72). It is rendered “maneh” in Eze. 45:12, but here the Hebrew text is obscure. Among the Hebrews the mina was equivalent to 50 shekels, though no text can be cited in support of this assertion except in the LXX version of Eze. 45:12, followed in the RSV. In Babylonia the mina consisted of 60 shekels. Mina weights made of metal in the shape of lying bulls have been found in Ugarit weighing 469 grams (*Syria*, vol. 18 [1937], pp. 147–151). The Ugaritic mina was heavier than the Egyptian mina of 437 grams but lighter than the minas of Babylonia that weigh between 491 and 502 grams. The basis for the values for the values used in this commentary is a mina of approximately 570 grams, derived from an 8-mina weight of 4,565 grams found at Tell Beit Mirsim, in Palestine (*Annual of the American Schools of Oriental Research*, vol. 21/22 [1943], pp. 76–78).

The shekel. From the Heb. *sheqel*, related to the Akkadian *shiqu*. Fortunately 16 inscribed shekel weights were found at Jerusalem in 1963 by Kathleen Kenyon. The new to moderately worn specimens vary from 10.88 to 11.59 grams. (See *Palestine Exploration Quarterly*, vol. 97 [1965], pp. 129–132.) The mina of 469 grams at Ugarit shows that the shekel there weighed about 9.38 grams. The 8-mina weight at Tell Beit Mirsim gives us a shekel of 11.4 grams, which is not far from an average, taking into consideration the Jerusalem weights mentioned above and various other Palestinian shekel weights ranging from 10.2 to 12 grams.

The nešep. This is a Palestinian weight that, surprisingly, is not mentioned in the Bible. Several inscribed specimens of it have been found, weighing from 8.8 to 9.9

grams. The meaning of *nešeph* is not known. Whether it is a light shekel or is based on an entirely different system is also unknown.

The pim. From the Heb. *pym*, a weight equivalent to 2/3 of a shekel. *Pym* appears in 1 Sam. 13:21, rendered “file” in the KJV but in the RSV as “pim,” a price the Philistines charged the Israelites for sharpening tools. Inscribed pims have been found in Palestinian excavations weighing from 7.26 to 7.60 grams. One specimen from Jerusalem weighing 8.39 grams (*Palestine Exploration Quarterly*, vol. 97 [1965], p. 129) is possibly unfinished, hence overweight. An 11.4-gram shekel gives a pim of 7.6 grams.

The bekah. From the Heb. *beqa’* (Gen. 24:22; Ex. 38:26), a half shekel. Inscribed weights found in Palestinian excavations range from 5.8 (O. R. Sellers, *The Citadel of Beth-zur* [1933], p. 60) to 6.1 grams. A shekel of 11.4 grams would mean a bekah of 5.7 grams.

The gerah. Literally the “bean,” or “grain.” This was the smallest Hebrew weight, the 20th part of a shekel (Ex. 30:13; Eze. 45:12).

It may be useful to give a list of the different actual weights as they have come to light at Ugarit, where more weights have been found than at any other Palestinian or Syrian site (*Syria*, vol. 18 [1937], pp. 147–151).

1/4 shekel(s)	2.5 grams	=	38.58 grains
1/3 “	3.5 “	=	54.01 “
1 “	9.5 “	=	146.60 “
2 “	18.7 “	=	288.57 “ (very common in Ugarit)
10 “	91.5 “	=	3.22 ounces
20 “	190.0 “	=	6.70 “
50 “	469.0 “	=	1.03 pounds

The average equivalents used in this commentary are as follows:

TABLE OF WEIGHTS

Unit	Modern Equivalents	
	Metric	Avoirdupois
Gerah (1/20 shekel)	0.57 grams	0.020 ounces
Bekah (1/2)	5.70	0.201
Pim (2/3)	7.60	0.268
Shekel	11.40	0.402
Mina (50 shekels)	570.0	1.26 pounds
Talent (3,000)	34.2 kilograms	75.38

II. Linear Measures

Archeology in Palestine has not brought to light any examples establishing the exact lengths of the linear measures used in the Old Testament. The Babylonian cubit, recorded on a statue of King Gudea of Lagash, was 19.6 inches (verified also by records on clay tablets). The Egyptian royal cubit was about 20.6 inches (52.32 cm.), but the common cubit about 17.7 inches (44.96 cm.). The Hebrews probably used the latter in building the tabernacle (Ex. 25:10), since they had but recently used Egyptian linear measures in construction work, and since their own cubit in Hezekiah’s day was approximately the

same. Hezekiah's cubit has been computed as about 17.5 inches (44.45 cm.) from the length of his Siloam tunnel (approximately 1,749 feet), which was, says the inscription on its wall, 1,200 cubits. The other Old Testament linear units, the span, handbreadth, and finger (see Ex. 25:25; 28:16; Jer. 52:21), are based on the cubit (*Journal of Biblical Literature*, vol. 77 [1958], pp. 205–214). Linear values used in this commentary as follows:

TABLE OF LINEAR MEASURES

Unit	Modern Equivalent
Finger (Heb. (1/24 cubit) <i>hesba</i>)	18.5 mm. 0.73 in.
Handbreadth (Heb. <i>tephach</i>) (1/6)	74.1 2.92
Span (Heb. (1/2) <i>zereth</i>)	222.3 8.75
Cubit (Heb. <i>'ammah</i>)	444.5 17.50

If the expression “first measure” of 2 Chron. 3:3 (“old standard,” RSV) is combined with the statements of Eze. 40:5; 43:13 that a long cubit had the length of “a[n old] cubit and an hand breadth,” measures 1/6 longer than those in the preceding table are to be understood. A long cubit would thus be 20.42 inches (0.518 meter) in length. These longer measurements may have to be applied in the conversion of measures found in later books like Ezekiel. Ezekiel's “reed” had a length of six long cubits (Eze. 40:5), or 12 feet.

The “cubit,” *gomed*, of Judges 3:16 is of an unknown length.

III. Measures of Area

The only measure of area mentioned in the Bible is the “acre,” *šemed* (1 Sam. 14:14; Isa. 5:10). It is a piece of land that could be plowed with one yoke of oxen in one day. However, 1 Kings 18:32 also deals with the size of an area equivalent to that on which two measures of seed was ordinarily sown. This became the usual measure of fields in the time of the Talmud (*Erubin* 23b) where it is defined as equal to 5,000 Hebrew square cubits, that is, approximately 10,634 square feet (988 square meters).

IV. Measures of Volume

Until very recently the greatest of uncertainty lay in the field of dry and liquid measures. Though the relationship of each to the others was known through Biblical statements or reliable Jewish tradition, their conversion into modern equivalents was most difficult. This was due to discrepancies between the rabbinical sources and Josephus as to their values, and to the fact that not one inscribed ancient measure was available to serve as guide, from either Palestine or Syria. This accounts for the fact that in almost every Bible dictionary or commentary different equivalents are given for these measures.

This situation has fortunately changed, and we are able now to base our figures on some inscribed bath measures recently discovered. A fragment of a jar was found at Lachish bearing on the shoulder the inscription “Royal Bath.” Another jar with a volume

of 45.33 liters containing the stamp impression, “For the king, Hebron,” was reconstructed from several fragments. Although the fragment with the “Royal Bath” inscription was from a jar with a similar neck and shoulder, it was much smaller than the stamped jar. Nevertheless C. H. Inge thought that the reconstructed stamped jar held a pre-exilic bath and suggested equating it with 10 gallons, which would have been considerably larger than the measure given by Josephus or other writers dealing with this subject (*Palestine Exploration Quarterly*, 1941, pp. 106-109).

More light on this subject was shed by fragments of a large amphora found at Tell Beit Mirsim, with the inscription “Bath” on one of them. W. F. Albright points out that the “Royal Bath” fragment from Lachish and the “Bath” amphora from Tell Beit Mirsim are of the same size, and when reconstructed equal about 22 liters, whereas the stamped larger jar from Lachish had the size of two baths. With this agrees a group of stone measures now in the Notre Dame Museum in Jerusalem, with a volume of 21.25 liters (*Annual of the American Schools of Oriental Research*, vol. 21/22 [1943], pp. 58, 59). This bath of about 22 liters, which approximates the volume given by the Jewish rabbis, can therefore be accepted as a reasonable basis of computation until more accurate evidence becomes available.

Homer. The *chomer* is a dry measure of 10 baths (Eze. 45:14).

Cor, the *kor* is both a dry (1 Kings 4:22; 5:11, margin) and a liquid (Eze. 45:14) measure of the same volume as the homer (Eze. 45:14).

Lethech. The *lethech* was a dry measure half a homer in volume (Hosea 3:2, margin).

Ephah. The *’ephah* was a dry measure for grain (Judges 6:19; etc.) equal to the **bath** in volume, and measured 1/10 of a homer (Eze. 45:11). The bath was a measure for liquids (1 Kings 7:26; Eze. 45:14; etc.).

Se’ah. Usually translated “measure” (Gen. 18:6; 1 Sam. 25:18; etc.). It is 1/3 of a bath according to rabbinical tradition, a dry measure for flour or grain.

Hin. This *hîn* was a liquid measure for wine and oil (Ex. 29:40; 30:24; etc.), equal to 1/6 of a bath according to Jewish tradition.

Omer. The *’omer* was a dry measure 1/10 the size of an ephah (Ex. 16:36).

Tenth deal, the *’iššaron*, was also the tenth part of an ephah (Num. 28:9; cf. v. 5 and Ex. 29:40), and like it, a dry measure.

Cab. The *qab*, mentioned only in 2 Kings 6:25, seems to have been a dry measure. It was used in Egypt, and is also mentioned in Jewish documents of the 5th century from Egypt, and frequently in later Jewish literature as being equal to 4 logs.

Log. This is the smallest liquid measure (Lev. 14:10, 12; etc.), which Hellenistic Jewish writers give as 1/72 of a bath.

The following list gives the various Old Testament measures of volume. The modern equivalents used in this commentary for converting Old Testament dry and liquid measures are based on the 22-liter bath previously mentioned under the “Ephah.”

MEASURES OF CAPACITY (DRY)

Unit	Modern Equivalents	
	Metric	U.S.

Cab	(1/18 ephah)	1.22 liters	1.11 qt.
Omer or issaron	(1/10)	2.20	2.00
Seah (measure)	(1/3)	7.33	6.66
Ephah	(1/10 homer)	22	2.50 pecks
Lethech	(1/2)	110	3.12 bu.
Homer or Cor	(10 ephahs)	220	6.24

MEASURE OF CAPACITY (LIQUID)

Unit	Modern Equivalents	
	Metric	U.S.
Log (1/72 bath)	0.31 liters	0.33 qt.
Hin (1/6 “)	3.67 “	3.88 “
Bath (1/10 homer)	22.00 liters	5.81 gals.
Cor (10 baths)	220.00 “	58.12 “

V. Monetary Values

There is no certainty whatever as to the weights of the various silver and gold monetary units mentioned in the Bible prior to the time of the Hebrew conquest of Canaan. The Tell Beit Mirsim shekel, computed from an 8-mina weight found there, is 11.4 grams. Weights found at Ugarit, in Syria, give a shekel of 9.5 grams. Shekel weights found in Egypt and Babylonia vary from 8.8 to 9.8 grams. Modern equivalent weights and values given herein are based on the average shekel of 11.4 grams, with the full understanding that this value, arbitrarily chosen, is only approximate.

In ancient times much business was transacted by means of the barter system. Solomon paid Hiram of Tyre in produce (1 Kings 5:11), and King Mesha's tribute consisted of sheep and goats (2 Kings 3:4). However, metal was used as a medium of exchange from very early times. Abraham paid 400 shekels of silver for the land he bought near Hebron (Gen. 23:16), but David paid 600 shekels of gold for the Jebusite threshing floor on Mt. Moriah (1 Chron. 21:25).

In Semitic languages “to pay” and “to weigh,” Heb. *shaqal*, Babylonian *shaqalu*, are the same word, as are “silver” and “money,” Heb. *keseph*, Babylonian *kaspu*. It is evident from this that silver was the standard metal for monetary exchange, and that it was paid by weight. Only after the introduction of minted money in the form of coins in the 7th century B.C. did the state fix the value of monetary pieces, and guarantee their value by its stamp.

The Amarna Letters written in Palestine during the 14th century B.C. show that the Canaanites used the Babylonian monetary system in the time of the Hebrew conquest, even in their dealings with the Egyptians. This is amazing, since the country had been part of the Egyptian Empire for almost a century by that time. Inasmuch as the Old Testament names for money values, shekel and mina, are of Babylonian origin (*shiqalu* and *manu*), it is generally assumed that the Hebrews also used the Babylonian monetary system and not that of Egypt. The latter was not used outside of Egypt.

That the Babylonian system was in use in postexilic Palestine, after coinage came in, is indicated by Josephus, who speaks of the gold mina as equal to 21/2 Roman pounds, and of 4 Attic drachmas (4 Roman denarii) as equal to one Hebrew silver coined shekel (*Antiquities* xiv.7.1; iii.8.2). Since the Roman denarius in Josephus' lifetime went from about 3.88 to about 3.24 grams, 4 denarii would have varied from about 15.52 to 12.96. His estimate, though inexact, would not be far off, for the weight of all extant Hebrew silver shekel coins from the time before the destruction of Jerusalem was 14.12 to 14.25 grams. This was a little less than the Babylonian heavy shekel if the light shekel was 8.37 grams (*Journal of the American Oriental Society*, vol. 64 [1944], p. 73).

Until positive evidence to the contrary becomes available it will be right to evaluate Old Testament monetary statements by using their known Babylonian equivalents. The difficulty is that the Babylonians reckoned in light and heavy shekels, minas, and talents, but the Old Testament writers do not indicate whether they used the light or heavy monetary values. As a result, uncertainty remains as to which should be understood in any given case. The difference between the two systems was 100 per cent. If certain money values are given in the heavy weight, it should be remembered that the value in the light weight should be only half as much. The values in the table below represent the light weight.

It may be useful to point out the ratio of the various metal values in Babylonia during Old Testament times. In the patriarchal age the ratio of gold to silver was about 1 to 4. But the value of gold increased so that during the first millennium B.C. the ratio was usually 1 to 131/3, with minor fluctuations. The ratio of silver to copper was usually 1 to 60.

BABYLONIAN STANDARD LIGHT WEIGHTS

Unit	Modern Equivalents	
	Grams	Oz. Troy
Shekel	8.37	0.27
Mina (60 shekels)	502.2	16.15
Talent (3,600 “)	30.132 kg.	968.76

Simply to convert ancient money into modern monetary values is deceptive. A true picture of ancient money values can be formed only by a comparison made in terms of the buying power of ancient money. For the Old Testament no examples are available, but for Babylonia we have, for example, these:

<i>Article</i>	<i>Value in silver shekels</i>
1 sheep or goat	2
1 ox	15-20
1 donkey	30
16 quarts of wheat	1
32 quarts of barley	1
6 pounds of wool	1
50-100 baked bricks	1
1 male slave	40-50

Coined money appeared first in Asia Minor in the 7th century B.C. Lydia is traditionally considered as the country where coined money originated. When Asia Minor became a Persian possession, the Persians adopted coined money and introduced it into all parts of their empire, which a few years after the conquest of Lydia comprised the

whole Near East. Gold coins were minted only by the king, silver coins by the provinces also. Darius I introduced the standard gold coin, which was named after him the *dareikos*, and was worth about \$5. Ezra 8:27 mentions the *dareikos*, or “dram,” and the writer of Chronicles (6th or 5th century) converted Davidic money into the *dareikos* for the benefit of his readers (1 Chron. 29:7).

In Ezra 2:69 and Neh. 7:70–72 money values are expressed in terms of Greek drachmas, or “drams.” The Hebrew makes a clear distinction between Greek and Persian monetary units. In Ezra 2:69 and Neh. 7:70–72 the word *darkemon*, “drachma,” is used, and in Ezra 8:27 and 1 Chron. 29:7 the word *’adarkon*, meaning *dareikos*, is employed. Until a few years ago critical scholars denied the possibility that Greek drachmas could have been used in Palestine during the early Persian period, and considered the texts mentioning the drachmas as proving the late origin of the books of Ezra and Nehemiah. However, the excavations of Beth-zur in Palestine have brought to light Attic drachmas of the early 5th century, showing that these Greek coins were then used in Palestine. The Attic gold drachmas were of about the same value as the Persian *dareikos*.

From the 4th century B.C. the Jews were allowed to mint their own coins. These imitated Attic coins, as specimens that have recently come to light show.

The Names of God in the Old Testament

THE titles of God as given in the Inspired Scriptures reveal His character and attributes as God. The nature of His dealings with men is made plainer by a consideration of the meaning of the various names by which He has chosen to reveal Himself. The Hebrew word for name, *shem*, may often be translated “person.” The same is true in the New Testament. “Blessed is he that cometh in the name of the Lord” (Mark 11:9) certainly refers to Jesus Christ as the personal representative of Jehovah. “Having been blessed,” *eulogemenos*, here means “having been, and still being, blessed.” Again, “Many believed in his name” (John 2:23). That is, they accepted in faith the revelation of His Person and the work He set before them. They believed on, or accepted, His Person. Thus in the New Testament the name of Christ signifies what He is. “His name was spread abroad” (Mark 6:14) means that news about Him and His work was spread abroad.

In the Hebrew Bible such texts as Ex. 3:14, 15; 6:3; 34:14; Jer. 10:16; 33:16; etc., are examples of how the divine name embodies character. *Shem*, “name,” originally signified “sign” or “token.” The name is the sign, or token, of him who bears it. It describes the person, it is characteristic of him. In the Greek, *onoma*, “name,” is from the same root as the word for “mind” and the verb “to know.” Similarly, the Sanskrit *naman*, “name,” is from the verb *gna*, “to know”; hence the name is equivalent to a “sign,” or “token,” by which something is known.

These facts are particularly true of the names of the Persons of the Godhead. They denote character and attributes of the divine Persons; they are a revelation of the divine Persons. Therefore God’s titles are an expression or revelation of God in His personal relation to men through the plan of salvation.

A general title for “God,” which occurs more than 2,500 times, is *'Elohim*. This word is plural in form, though most generally found with a singular verb when it refers to God. Some scholars associate this term with the Arabic verb “to fear,” “to revere,” in that sense portraying God as the supreme being to whom reverence is due. The root of this word implies “strength,” “power,” “ability.” It is used first of God as Creator (Gen. 1:1). The work of creation is an amazing exhibition of God’s power and majesty, of divine omnipotence in action. The creatorship of God tends to arouse in man awe, reverence, and a sense of utter dependence. The name *'Elohim* represents the God who has revealed Himself by His mighty acts in creation.

The noun *'Elohim* is used almost exclusively in the plural form in speaking of God. Some have seen in this fact the doctrine of the Trinity. It was *'Elohim* who said, “Let us make man in *our* image, after *our* likeness” (see on Gen. 1:26). The use here of the plural certainly suggests the fullness and manifold potentialities of the divine attributes. At the same time, the consistent use of the singular form of the verb emphasizes the unity of the Godhead and stands as a rebuke to polytheism.

The designation *'Elohim* is occasionally used of men who occupied the important position of speaking for God. For example, God told Moses that he was to be to his brother Aaron “instead of God [*'Elohim*]” (Ex. 4:16). God gave His message to Moses, who gave it to Aaron, and he in turn passed it on to Pharaoh. This is further stated in Ex. 7:1, where God says to Moses: “See, I have made thee a god [*'Elohim*] to Pharaoh: and Aaron thy brother shall be thy prophet.” These responsible men were the representatives of the only true *'Elohim*, of Him who created all things by His mighty power, and who is therefore worthy of all reverence, godly fear, and worship on the part of created men. *'Elohim* is also used of “judges” (Ex. 21:6; 22:8, 9) in their capacity as representatives of God.

The simple, and presumably earlier, form *'El* is used more than 200 times in reference to the one true God. Moses, David, and Isaiah are particularly fond of this appellation. Sometimes it is used with “the,” as “the God of Beth-el” (Gen. 31:13; cf. 35:1, 3), and “the God of thy father” (Gen. 46:3). Here again emphasis is upon the One who is the All-powerful, the Omnipotent One, the only true God. Other elementary forms, such as *'Elah* and *'Eloah*, are found in a number of texts, each variation of the main root expressing the same idea of power and might.

The form *'El* is often used in various compound forms as titles of God. An example of this is *'El-Shaddai*. This title suggests the abundant graciousness of God, the temporal and spiritual bounties with which God enriches His people. Others hold that *Shaddai* is from a root meaning “to be violent,” “to despoil,” “to devastate.” Applied to God, it would mean “to display power.” This is expressed by the translation “Almighty” (KJV, RSV, Moffatt, Smith-Goodspeed). This name thus sets forth God as either the Mighty One or the Bountiful One.

The first occurrence of *Shaddai* is found in the first verse of the story of God appearing to Abraham (Gen. 17:1, 2, 4, 6) and saying: “I am God Almighty; walk before me, and be thou perfect: and I will make my covenant between me and thee, and will multiply thee exceedingly ... and thou shalt be a father of a multitude of nations ... and I will make thee exceedingly fruitful.” This name is found again in Gen. 28:3, where Isaac says that *'El-Shaddai* will bless Jacob, make him fruitful and multiply him. A similar promise of *'El-Shaddai* is found in Gen. 35:11, and 43:14; 49:25. Such passages suggest the meaning of bountifulness exercised by God: *'El*, the God of power and authority, and *Shaddai*, the God of inexhaustible riches, which He is able to bestow.

The divine title most common in the Old Testament (some 5,500 times) is the sacred word *YHWH* (sometimes also transliterated *JHVH*), often called the Tetragrammaton, literally, “four letters,” in reference to the four consonants composing it. (In ancient Hebrew, only the consonants of a word were written.) *YHWH* is generally translated “LORD” in the KJV and distinguished from other words translated “Lord” by the use of small capitals, as here. The Jews considered the title *YHWH* so sacred that they would not pronounce it even when reading the Scriptures, lest they unintentionally profane the name of the Lord (see Lev. 24:16). Instead, they read *'Adonai* (see explanation on p. 35). Consequently the true pronunciation of *YHWH*, now thought to have been *Yahweh*, was lost.

A few centuries after Christ, certain Jewish scholars called Masoretes added vowels to the written Hebrew in an endeavor to preserve a knowledge of the spoken language. At that time they added the vowel sounds of *'Adonai* to the consonants *YHWH*. This made the word read, literally, *Yehowah*, transliterated into English as “Jehovah.” Not knowing what the original vowel sounds of *YHWH* were, they thus purposed to call attention to the fact that the word should be read *'Adonai*. Coming to the word *Yahweh*, however, an informed reader of Hebrew would read *Adonai*. Not knowing these facts when they began making use of the Hebrew Scriptures, Christians either transliterated it as the Masoretes actually wrote it, “Jehovah” (Ex. 6:3; Ps. 83:18; Isa. 26:4; etc.), or, more often, rendered the word as “LORD.”

There have been great differences among scholars in respect to the origin, pronunciation, and meaning of the word *YHWH*. Probably *YHWH* is a form of the Hebrew verb “to be,” hence means “the One who is,” or “the self-existent One.” Some point out that the verb form can be causative, and therefore can mean “the One who causes to be” or that, interpreted by the phrase *'Ehyeh 'asher 'ehyeh* (Ex. 3:14), it means “He who is, or will be,” hence “the Eternal One.” Thus the title rendered LORD (KJV and RSV) or Jehovah (ASV) implies the attributes of self-existence and timelessness.

Yahweh is the living God, the Source of Life, as contrasted with the gods of the heathen that have no existence apart from the imagination of their worshipers (see 1 Kings 18:20–39; Isa. 41:23–29; 44:6–20; Jer. 10:10, 14; 1 Cor. 8:4). This name was revealed to Moses on Mt. Horeb (Ex. 3:14). It is the holy name of the covenant-keeping God, who has

provided salvation for His children. As with other divine titles, it represents in the Hebrew the divine character in His personal relation to His people.

A deep feeling of reverence and awe at the holy character of the names of God, and a gentle eagerness to show respect, also influenced the scribes to copy the titles faithfully. They would pause a moment before presuming to write the sacred characters. And the name above all others that was looked upon as *the* name, the personal name of God, was *Yahweh*.

An expression very common in the Old Testament is “the word of the LORD [*Yahweh*].” It is found in Gen. 15:1, a chapter in which the name *’Elohim* does not occur. It is the covenant name. It is the name by which God commonly communicated with men (see Gen. 18:1, 2; 28:13–17; Ex. 33:9–11; 34:6, 7).

The name *Yahweh* is also used in compounds to disclose more fully the redeeming and keeping power of God in relation to His people. Such is *Yahweh–yir’eh*, literally, “*Yahweh* will see” (Gen. 22:14), meaning “God will provide” (v. 8). (Our word “provide” means to “foresee.”) The test of Abraham’s faith consisted not so much in whether his God would *appear*, as whether He would *provide*. It contains the promise that *Yahweh* would provide the sacrifice necessary for atonement. This compound name is at the very foundation of the plan of salvation.

In Eze. 48:35 (KJV) is the expression: “The LORD is there.” Literally, the Hebrew reads: *Yahweh shammah*. This suggests the presence of God among His people. This is almost a title, as is the expression used later by Hagar, *’El ra’i*, literally, “God sees me” (Gen. 16:13). Similar to this are the Hebrew descriptive phrases: *Yahweh ro’i*, “Yahweh my shepherd” (Ps. 23:1); *Yahweh rop’eka*, “Yahweh your physician” (Ex. 15:26); *Yahweh s̄ideqenû* “Yahweh our righteousness” (Jer. 23:6); *Yahweh shalom*, “Yahweh-peace” (Judges 6:24). All of these titles help to express God’s part in the plan of salvation.

Other names suggest the believer’s warfare: *Yahweh nissî* (KJV, Jehovah nissi), “Yahweh my banner,” from the verb *nasas*, “to move to and fro” (Ex. 17:15). The title *Yahweh šeba’oth* (first appearing in 1 Sam. 1:3), “Yahweh of hosts,” sets Him forth as the Commander in Chief of all created beings, as the One who will lead His creation to final victory (see Rom. 9:29; James 5:4). This title is sometimes *’Elohim–šaba’oth* (Ps. 80:7, 14, 19; Amos 5:27).

The title “Lord of hosts” is perhaps the most sublime of God’s titles. It is suggestive of His full control and overlordship of the entire universe. A beautiful example, in its suggestiveness, is Ps. 24:9, 10, which reads literally: “Throw open the gates, and raise up your leaves, O doors of the ages, and shall enter in the King of glory. Who is this King of glory? Jehovah of hosts, He is the King of glory” (cf. 2 Sam. 7:26; Ps. 46:7; 48:8; Zech. 2:9).

The Hebrew word *’adon* is found some 300 times in the Old Testament. It is usually translated “lord,” or “master.” It is used of a proprietor of property, the master of a

household, a governor of a province. It is also translated “sir” (Gen. 43:20), and “owner” (1 Kings 16:24), but most frequently by the words “lord” and “master.” It is a title of rank, honor, and authority (see Gen. 18:12; 24:12, 42; Ex. 21:4; Num. 11:28; 1 Sam. 1:15; etc.). But when it is applied to God the word takes the form *'Adonai*. The first instances are Gen. 15:2, 8; 18:3. It sets forth His lordship, His right to obedience. It is sometimes coupled with *Yahweh*, and the two terms translated Lord GOD (Ex. 23:17; 34:23), as also with a form of *'Elohim*, Lord God (Ps. 35:23; 38:15). For the various forms used for these combinations in the KJV, see the tabulation in the article on “The Languages, Manuscripts, and Canon of the Old Testament,” in this volume. The title *'Adonai* is further found in such expressions as “Lord of the whole earth” (Joshua 3:11, 13; Ps. 97:5; Zech. 4:14; 6:5; Micah 4:13).

Two other titles express the idea “Most High,” “Exalted.” One is *'Elyon*, from the verb “to rise up.” Examples are found in Gen. 14:18–20, 22; Num. 24:16; 2 Sam. 22:14; Ps. 7:17; 9:2; 18:13; 21:7; 46:4; 47:2; etc., with the final text in Lam. 3:38. The title “thou most High” and similar phrases in the KJV (Ps. 56:2; 71:19; 92:8; 93:4; Micah 6:6) are from another Hebrew word, *marom*, from a separate root, “to rise up,” “to be exalted.”

The name *baal*, also meaning “lord,” “owner,” “ruler,” is common in the Old Testament, where it is generally a title of disrepute, being the name given to local heathen gods. It is often used in compounds such as Jerubbaal, Esh-baal, and Merib-baal. But it is also applied to Jehovah, translated “husband” (Isa. 54:5; cf. Joel 1:8, “husband”). Therefore the feminine form is found suggesting the church, the bride of God (see Isa. 62:4, “Beulah”).

There are other titles such as *'El-šur*, which is variously translated as “mighty One” of Israel (Isa. 30:29; etc.), and “Rock” (2 Sam. 23:3; etc.); but perhaps these can scarcely be thought of as proper names.

The Chronology of Early Bible History **PART I: THE ELEMENTS OF CHRONOLOGY**

I. Introduction

THE harmony of the time statements in the Scripture strengthens our confidence in the accuracy of the inspired Word, but chronology is not essential to salvation. That is evidently why God did not see fit to fill in all the details of chronology. There are some points left open for personal opinion as to the exact dating, and different writers among us have at various times used differing dates. This is not to say that historical dates do not help us sometimes in our search for deeper spiritual truth, or that those few connected with exact prophetic periods are unimportant; but prophetic landmarks are well established, and other historical dates are rarely questions of theological importance.

To dogmatize on chronology or to attempt to fix every date once for all would be not only presumptuous but impossible. This article, and the similar ones in succeeding volumes, will endeavor to provide a general outline and to explain certain basic principles. Many supposed difficulties have been cleared up by increasing knowledge of ancient chronology. Although we cannot expect all authorities to agree in their interpretation of the incomplete facts of ancient times, we can confidently expect future

research to strengthen the Bible record. Wherever this record can be adequately tested, it stands revealed as trustworthy history. Its time statements are not haphazard or fanciful, but harmonious and reasonable.

II. Time Measured by Heavenly Bodies

When God set this globe spinning on its axis and sent it on its yearly course around the sun, accompanied by its smaller attendant, the moon, He decreed that these heavenly bodies should govern the earth's day and night, and, further, that they should be "for signs, and for seasons, and for days, and years" (Gen. 1:14). Thus time is measured for the earth by these motions. The ancients watched the skies for signs and seasons, for the time of day, and for the beginning of the month. Today the astronomers in the great observatories train their telescopes on the stars to regulate the time signals that set our clocks.

The Day Measured by the Earth's Rotation.—As this planet turns on its own axis, floodlighted by the sun, half the globe is in the light and the other half in the shadow. That is, there is day on one side and night on the other. For "God called the light Day, and the darkness he called Night" (Gen. 1:5). As we, on any given spot on this spinning globe, are carried eastward, out of the sunlight and into the shadow, we say that the sun is setting in the west. Then, following our all-night swing around the dark portion, we come again to the light. We see the sun once more at the dividing line that we call sunrise. As our local spot approaches the point directly opposite the sun, that fiery orb appears to rise higher in our sky until it is on our meridian at noon. Then it appears to decline as we move farther around the sunlit side, and we complete one circuit as we again reach the sunset line—the edge of the shadow. The ancients needed no clocks to tell them when they passed the boundary line between day and night—sunrise began the day and sunset ushered in the night.

"Are there not twelve hours in the day?" asked Jesus (John 11:9). And so it was, for in His time an hour meant one twelfth of the interval—varying with the seasons—between sunrise and sunset. But "day" has another meaning also. A period marked off by five days, or any number of days, cannot disregard the intervening nights. Therefore a day in the calendar is measured by one complete rotation of the earth on its axis, including a day and a night. For the Hebrews the starting point was sunset. Each full day ran evening-morning, dark-light, night-day (Lev. 23:32; 22:6, 7; Mark 1:21, 32). Also certain other ancient peoples, like the Babylonians, began their day at sunset, although the Egyptians counted from sunrise. Our modern midnight-to-midnight reckoning came from the Romans.

The Month Governed by the Moon.—Just as one complete rotation of the globe on its axis, from sunset on to sunset again, marks off one day on this earth, so the time required for the moon to go once around the earth—that is, to pass through its visible phases, as from crescent to full moon and to crescent again—constituted the original month. The ancient lunar month did not begin at the astronomical new moon, when that body stands between the earth and the sun—with its unlighted side toward us, and hence invisible—but one or more days later, with the appearance of the new crescent. Now, however, most of the world uses artificial calendar months that disregard the moon.

The Year Measured by the Sun.—As our spinning earth, circled continuously by the moon, traverses its vast course around the sun, it makes the circuit of the four seasonal landmarks—the summer and winter solstices and the spring and autumnal

equinoxes—to complete what we call a year. These points do not mark off the year as visibly as the moon does the lunar month, yet even relatively primitive peoples can recognize them by repeated observation of the shadows cast by the sun at rising, setting, and noon throughout the year. At the summer and winter solstices occur the days of longest and shortest sunlight, when the sun is seen farthest north and farthest south in the sky; at the spring and fall equinoxes, when day and night over the whole globe are equal, the sun rises directly in the east and sets directly in the west. And despite the difficulty in determining the precise length of the year, the veriest savage can tell its passage by the cycle of the seasons, marked by unmistakable signs.

The Week Not Marked by Nature.—Only the week, measured by divine command, has no *natural* landmark. The three independent celestial motions—the daily rotation of our globe on its axis, the monthly circuit of the earth by the moon, and the yearly revolution of earth and moon about the sun—mark off our time, but there is no astronomical cycle connected with the seven-day week. Yet the Sabbath, given in the beginning by the God of nature, definitely marked off by the manna, even before the law at Sinai, is identified in the New Testament (Gen. 2:1–3; Ex. 16:4, 5, 22–26; 20:8–11; Luke 23:54 to 24:1); since then we can count the weeks back into the past with certainty from known dates.

III. Calendars Reconcile the Three Motions

The three natural motions that measure our time are incommensurable, that is, do not “come out even.” While the earth is making one revolution around the sun, the moon revolves around the earth 12 times and about a third of a circuit over, and the earth turns on its own axis 365 times plus a little less than a fourth of a turn. Therefore calendars have had to be devised in order to count years by a whole number of days or lunar months.

Lunar Calendar Based on the Moon.—A lunar calendar year of 12 moon months is 10 or 11 days shorter than the true solar year, which governs the seasons. Hence in an uncorrected lunar calendar, like that of the Moslems to this day, a summer month moves gradually earlier until it comes in the spring, and so on. But the Babylonians, Assyrians, Jews, Greeks, and early Romans kept their lunar years in step with the seasons by adding to the year periodically. The Jews, like the Babylonians, inserted an extra lunar month 7 times in each 19 years (see article on the Jewish calendar in Vol. II).

Solar Calendar Measures Sun’s Year.—Our modern world today uses a solar calendar, that is, one based on the sun’s year and disregarding the moon entirely. We do not need to add extra months, since our ordinary 365-day year is only about a fourth of a day shorter than the true period of the earth’s journey around the sun, but we correct it every four years (with certain exceptions) by adding one day to February. Our New Year’s Day now comes about ten days after the winter solstice; but if we should drop the leap-year system, the New Year would move one day earlier every four years. Eventually the alignment of the months with the seasons would be noticeably different from what it is now.

This was what happened to the ancient Egyptian year, from which our modern year was derived. This Egyptian calendar year of exactly 365 days was divided into twelve 30-day months plus 5 extra days at the end. The leap-year correction was never made until the country was conquered by the Romans less than half a century before Christ. This was soon after Julius Caesar had adapted the Roman months to the 365-day year, which

he introduced from Egypt, with the addition of a day every four years. Our present calendar is essentially Caesar's "Julian" calendar, months and all, with a further slight adjustment.

Space has been given here to the explanation of the Julian calendar because modern historians date all past events (up to the A.D. 1582 revision) in Julian years. The B.C. system of dating will be discussed on pp. 177, 178.

The Starting Points of Years.—A year is a circle; the end of one is the beginning of the next, and there is nothing in nature to indicate any one starting point. Sometimes the year is thought of as opening with the beginning of the agricultural cycle of sowing and reaping, which itself varies in different parts of the world. But a calendar year must have a definite point of departure. Four landmarks of the solar year have been mentioned—the solstices and equinoxes. Ancient calendar years were often begun at or near one of these easily observable points. Our own year begins on January 1, near the winter solstice, because that was approximately where Julius Caesar placed the Roman New Year's Day in his calendar, which we have inherited.

Other ancient calendars began the year in the spring or in the fall. In Palestine it was natural to think of the year as beginning in the fall, when the early rains brought new life to the country after the dry season, without rain for several months, and when winter wheat and barley were sown; the harvests came in the spring and summer, ending with grape gathering in the autumn. The Hebrews had two year reckonings. One (instituted at the Exodus) was begun in the spring, for numbering the months and reckoning the beginning of the series of sacred festivals; the other, the old civil year, started with the seventh month, in the fall (see article on the Jewish calendar in Vol. II). These were lunar years, reckoned from the new moon, not from the equinox.

IV. Dating Ancient Events by Years

Ancient Year Systems.—Various methods of counting a series of years were in use in ancient times. In an earlier period a year was designated by the name of a principal event, or sometimes by the name of an annual official. In Assyria this was an honorary official, called a *limmu*; in Athens and in the Roman world the names were those of genuine annual magistrates—in Athens an *archon* and in Rome the two *consuls*. In the Near East, calendar years were numbered in series during each king's reign, and thus called *regnal* years. In the Bible (though not in the first five books) we find regnal-year dates, such as "in the seventh year of Artaxerxes" (see articles on chronology in Vols. II and III).

If men had begun at creation and counted year 1, year 2, and on continuously, and if the Bible records had been dated by such a system, it would be a simple matter to know exactly how long ago any event happened. But no such information exists. Not until relatively late in ancient times, long after the period covered in this volume, did anyone use an *era* for dating, that is, a continuous series of years numbered consecutively from one starting point. For example, the Seleucid Era (see chronology article in Vol. III) was a continuation of the reign of Seleucus I, one of the successors of Alexander the Great. The year 1 of this era began, according to the Macedonian calendar, in the fall of the year that we now call 312 B.C. The Seleucid Era was used in Syria and Mesopotamia for many centuries. The Greeks long employed a series of four-year periods called Olympiads, marked off by the quadrennial Olympic games, and the Romans used a system of

numbering years consecutively from the supposed founding of Rome. Both these series, unlike the Seleucid Era, were devised centuries after the quite uncertain traditional dates of the events from which they were supposed to be reckoned. They were not used in everyday dating formulas—only for referring to historical events.

Our System of B.C. Dating.—Today the greater part of the world uses, or is familiar with, the dating of the Christian Era, by which all years are numbered from approximately the time of the birth of Christ. The present volume of this commentary is being prepared in the year known as A.D. (for *anno Domini*) 1953. This means “in the year of (our) Lord 1953,” that is, the 1,953d year from the birth of Christ. To be more exact, it is the 1,953d from the point assigned to the nativity by Dionysius Exiguus, the 6th-century originator of this method of reckoning. The fact that the traditional starting point is now known to have been several years away from the actual date of Christ’s birth does not affect the usefulness of this scale of years for dating purposes.

When it became the custom to date events by the number of years from the supposed time of the birth of Christ, it became convenient to date earlier events as so many years “before Christ” (abbreviated B.C.). Thus for historical purposes the Julian calendar years, in which dates had been reckoned in the Roman world since Julius Caesar’s day, were extended backward, as if they had existed in all past time. When we say, for example, that the first year of Ptolemy’s “Era of Nabonassar” began February 26, 747 B.C., we mean that it began on the day that would have been called February 26 if the Julian calendar had been in use at that time, and in the 747th year before the year that was later to be numbered the first of the Christian Era.

It is to be remembered that historians and chronologists have given the year preceding A.D. 1 the designation of 1 B.C., and the year preceding that 2 B.C., and so on. Just as years B.C. run “backward,” that is, 1900 B.C. is followed by 1899, 1898, 1897, etc., so do the centuries—the 16th century B.C. runs from 1600 through 1599 and down through 1501; the 5th century B.C. runs from 500 through 401 B.C.

The B.C. Dating of Old Testament Events.—It is possible to date Old Testament events in the B.C. scale only where there is a time statement that can be equated with a known historical date. Astronomical calculation can be used to fix a date for which we have ancient eclipse records or observations of the heavenly bodies, and sometimes a date that is given in two calendars (see chronology articles in Vols. II and III). Thus we have synchronisms between the years of the last kings of Judah and certain years of the reign of Nebuchadnezzar. Since the years of Nebuchadnezzar are known from astronomical data found by archeologists in Babylonia, also from observations recorded in Ptolemy’s astronomical work known as the *Almagest*, and from his canon of the kings, the years of these kings of Judah can be aligned with the B.C. dating. Also we have an indirect contact with the Assyrian *limmu* lists by means of a reference to Ahab in the Battle of Qarqar (mentioned, however, only in non-Biblical documents). But for the early Biblical dates we are dependent on tracing back the line of Bible time-statements from these later more certain dates, and there is room for difference of opinion in this process. Specific information is scarce, and systems of reckoning vary; hence our knowledge of ancient chronology has accumulated gradually and is still far from complete.

A.M. Dating From Creation.—Genesis furnishes no era dating, but older chronologists counted years from Creation as *anno mundi* (“in the year of the world,”

abbreviated A.M.) 1, 2, etc., based on the patriarchal genealogies. These genealogies, if complete and if correctly interpreted, would give exact intervals from Adam to Abraham. But an A.M. scale requires a fixed starting point. Each writer's B.C. date for A.M. 1 (1) varies with his choice of the Masoretic or the LXX figures (nearly 1,500 years' difference), and (2) his interpretation of these and all other OT chronological data. For this reason an A.M. date has no basis other than the writer's theory.

Marginal Dates in Printed Bibles.—A.M. dates taken from Archbishop James Ussher's *Annals* (published 1650-58) were the first to appear in the margin of the KJV. The KJV carried no dates originally, and was not the first Bible to present those of Ussher, which had been printed in the margin of a French Catholic Latin Bible in 1662. Ussher's dates (A.M. only) appeared in an Oxford Bible in 1679, with the figures revised in spots by Bishop William Lloyd; his A.M. and B.C. dates were incorporated (probably by Lloyd also) into a London edition of 1701. Thenceforth these dates, generally credited to Ussher but partly revised, and inserted without any official authorization, continued to be printed until they were almost viewed as a part of the Bible by generations of readers.

In the latter part of the 19th century many Bibles included new chronological tables based on later knowledge, while retaining the old "Ussher" dates in the margin or omitting them entirely. In the 1950's a modernized set of marginal dates came out in a new KJV edition. Similar ones appeared as late as 1974 in a Collins edition of the KJV (although most Bibles by then had no marginal dates): Events before David are dated only by centuries, and later dates differ from Ussher's, though not consistently. In Ezra 7 there appears a curious shift; Ezra's journey to Jerusalem is dated 428 B.C., long after Nehemiah's arrival. This is based on a theory that, contradicting the Bible account, puts that event in the 37th, not the 7th, year of Artaxerxes.

PART II: CHRONOLOGY IN THE BIBLE RECORD

In view of all the differing ancient systems of chronology and of the numerous theories of later interpreters of the Bible, it becomes necessary to consider the methods to be used in assigning B.C. dates to the Old Testament events, particularly down through the Exodus to the end of the 40 years' wandering. This dating hinges on two points: (1) the text in which the source information is found, and (2) the problem of the meaning of the time statements in that text.

I. Time Statements in Genesis

The Hebrew, Samaritan, and Septuagint Texts.—The original text of our Old Testament, except a few chapters, was written in Hebrew. The translations in use today are made almost entirely from the Masoretic text, which has been handed down by the Jews through the centuries, copied from one manuscript to another with scrupulous care (see pp. 24-26). In Genesis the years of the patriarchs in the Hebrew text differ from those in the Samaritan Pentateuch, a variant form of the Hebrew text preserved by the half-Jewish, half-pagan Samaritans. Different from both of these are the figures in the Septuagint, a Greek translation begun in the 3d century B.C. in Alexandria (see p. 39). It gives higher figures for several patriarchs, inserts a second Cainan after Arphaxad, and shows other differences.

The totals from creation to the Flood are: Hebrew, 1,656 years; Samaritan, 1,307; Septuagint, 2,242 (or 2,262; manuscripts vary); from the Flood to Abraham: Hebrew, 352 years; Samaritan, 942; Septuagint, 1,232 (or 1,132).

Since the oldest known Masoretic manuscripts of the Pentateuch are late copies, more than 1,000 years away from the originals, some scholars have thought that the figures' for the patriarchs had become changed since the time when the Septuagint translation was made. But the age of a manuscript is not the sole deciding factor. The later of any two copies may preserve the wording of a text much nearer to the unknown original than a much older manuscript copied carelessly or from an old but already corrupted text. Thus the work of the "lower" or textual critic involves determining, from various kinds of evidence, which form of the text has most likely been changed from the original.

For the ages of the patriarchs the Samaritan text is less trustworthy than the Hebrew, because we find in other places revisions of the wording to agree with their views. And the Septuagint translators, who elsewhere (as in Daniel) injected their own ideas, are thus more likely than the meticulous Hebrew copyists to present a revised form of the genealogy.

Reasons for Preferring the Hebrew Lists.—Some Septuagint manuscripts, having Methuselah 167 at his son's birth, thus make him survive the Flood 14 years; other manuscripts, making him 187, avoid this difficulty. Also there are other reasons why the translators of the Septuagint version were more likely to have changed the figures than the later Masoretes, who handed down the Hebrew text to us. The Greek-speaking Jews who translated the Septuagint in Alexandria wished to win for it the respect of the learned Greek world. It is known that they were much less strict about preserving the letter of the original than were the Palestinian Jews. Their version was made for Greek-speaking readers. If they wished to make the chronology of the earliest ages compare favorably with the beliefs of the current Alexandrian philosophy and seem more reasonable to the Greek mind, they would naturally lengthen the periods as much as possible, and smooth down the sudden drop, after the Flood, in the life span and the interval from father to son; and that is exactly what their figures do, repeatedly running 100 years higher (see tables, pp. 248, 289).

Some scholars have contended that the Septuagint was translated from the correct text, but that the Masoretes, working this side of the time of Christ, made or perpetuated changes to discredit the Septuagint because it was the version largely used by the Christians. But if this were so, why would the Jews alter such minor points as the ages of the patriarchs and leave unchanged the 70 weeks and other prophecies used by Christians to prove the Messiahship of Jesus? If the Masoretes copied their texts so conscientiously as to retain, word for word, so many evidences against themselves, their text should be preferred to that of the Alexandrian translators, who took liberties with the text to advance their own ideas. This question cannot be settled with certainty. Though the Dead Sea scrolls sometimes support a variant Septuagint wording, they have also confirmed the trustworthiness of the Masoretic Hebrew text, on which have been based the most noteworthy and widely accepted translations, both Catholic and Protestant. This commentary will follow that time-honored practice and base the discussion of the patriarchs on the Hebrew text.

II. Some Principles of Bible Chronology

In converting the time statements of the Bible into chronological computation, we must consider certain general principles of the Hebrew language and mode of reckoning that apply to the Pentateuch and to other scriptures as well. It should be kept in mind that the meaning of a sentence is not necessarily what the words mean to us now, even after

they are translated, but what the ancient writer meant when he used those words. In the Bible, “son” may mean a grandson (Gen. 31:55, cf. v. 43); “brother” may mean a nephew or an uncle (Gen. 14:12, 16; 29:10–12). Even so simple a statement as the fact that Noah was 600 years old at the time of the Flood can be, and generally is, misunderstood.

The Method of Expressing Age.—Noah was “six hundred years old”—literally, “a son of 600 years”—when the Flood came (Gen. 7:6). What this phrase means is made clear in the same chapter by the first complete dating formula given in the Bible: “In the six hundredth year of Noah’s life, in the second month, the seventeenth day of the month, the same day were all the fountains of the great deep broken up” (v. 11). Therefore “a son of 600 years” does not mean that Noah was 600 years old as we understand it, but that he was *in* his 600th year, still unexpired. In our modern reckoning we say that a child is so many months old in his first year. He reaches his first birthday at the *end* of his first years, and he is not considered one year old until that first birthday. But when he reaches that day his second year begins. So he will one day be 21 years old, after he has completed his 21st year; he will be 21 all through his 22d year until upon its completion he is said to reach the age of 22. We would count Noah 600 years of age only at the end of his 600th year, but the Hebrews counted him “a son of 600 years” *in* his 600th year (see on Gen. 5:32).

Consecutive Ages of the Patriarchs.—Just as Noah was “600 years old” in his 600th year, so Adam must have been 130 years old in his 130th year when Seth was born (Gen. 5:3), and not what we call 130 years old. On this principle Seth was born in the 130th year of the world (*anno mundi* or A.M. 130); thus the sum of the ages of the patriarchs at the birth of each oldest son will furnish a continuous series of years from the creation *only*.

We have no way of knowing just how the patriarchs themselves counted their ages at the time. Presumably the years were not reckoned by birthdays, but by beginning each year of age at the beginning of the calendar year, for Noah’s 601st year seems to begin at the 1st day of the 1st month (Gen. 8:13). It has been the immemorial custom in the Far East to consider a child a year old in his first calendar year, and to count him two years old on the next New Year’s Day, even a few days after his birth. Either the patriarchs began the *first* year after the next New Year’s Day (see note 4), or else the numbers were adjusted later, when the list was made up, in order to avoid the overlap.

Inclusive Reckoning.—But apparently the common usage in counting intervals of time was the inclusive reckoning, that is, counting the incomplete days, years, etc., at the beginning and end of a period as if they were whole units. The classic example is, of course, the three-day period of Christ in the tomb, from Friday afternoon to Sunday morning (see “the third day,” “in three days,” and “after three days” all used as equivalent expressions for the same period by the same writer: Matt. 17:23; 27:40, 63). The clearest Old Testament example is in 2 Kings 18:9, 10, where “at the end of three years” is what we would reckon as a two-year interval (see the article on chronology in Vol. II of this commentary), but the usage occurs also in the books of Moses. Joseph put his brothers “into ward three days,” but not three *full* days, for on “the third day” he bound Simeon and sent the others home (Gen. 42:17–19); and “the second year after” the Exodus (Num. 9:1) really means the year immediately following it, the first year being the year in which the period began (see pp. 186, 187).

It is clear from source documents that not only the Jews but also other ancient peoples used inclusive reckoning, by counting the beginning and end of a period. We find the Greeks calling the 4-year Olympiad between Olympic Games a *pentaeteris*, or “5-year period,” and the Romans referring to the winter solstice (then December 25) as “the eighth day before” January 1—the 8th counting both the 25th and the 1st. Even in later times we find the looser reckoning in common speech, although in mathematical computation the time elapsed would be calculated exactly.

Parts and Wholes.—The Bible writers sometimes use another characteristically Oriental type of expression—they name the whole period for the part, meaning actually the latter part of a period that has already begun. For example, at Kadesh the Israelites were condemned to wander 40 years in the wilderness (Num. 14:33), that is, *the remainder of* that period, counted from the departure from Egypt. Actually this was already in the 2d year and only 38 years were left from Kadesh to the final stage of the journey (Deut. 2:14; see the tabulation on p. 187). The 430-year sojourning of “the children of Israel” (Ex. 12:40)—including the time from Abraham (see p. 184), long before there were any Israelites—can be explained as an example of such reckoning. Also explained below are two cases of three sons listed for one birth year; yet they were not triplets, and neither first-named son was the eldest.

The Oriental, generally less concerned with exact time than the Westerner, is more likely to use approximate time statements and round numbers, and the reader of the Bible needs to keep this in mind. But the Old Testament is far more specific in its time statements than any other ancient literary document.

III. The Line of the Patriarchs

The Patriarchs From Adam to the Flood.—The list of the patriarchs in Genesis 5 begins with Adam, then continues with Seth, born in Adam’s 130th year (or A.M. 130, according to those who construct an A.M. scale of years), followed by Enos, born 105 years later, Cainan, 90 years after that, and so on to Noah. For the age of Noah at the birth of Shem we must look elsewhere, for Genesis 5:32 says only that “Noah was five hundred years old: and Noah begat Shem, Ham, and Japheth.” This might be taken to indicate that the sons were triplets, or at least that Shem was the firstborn; but a comparison of Genesis 7:6 and 11:10 shows that Shem was not the eldest, born when his father was 500; instead, he was 100 years old two years after the Flood (which came when Noah was 600), and hence was born when Noah was 502 years old. Apparently Shem was named first because of his importance, which depended not on his age but on the fact that through him the genealogy was carried on, and possibly because through his line were descended the Israelites.

The B.C. dating of this patriarchal period is not possible to determine. The first links between Biblical and B.C. dating come in the time of the kings of Israel and Judah (see p. 196).

The Chronology of the Flood.—The Deluge lasted one year and ten days, from the 17th of the 2d month in Noah’s 600th year to the 27th of the 2d month in Noah’s 601st year (see on Gen. 8:14).

Since it is not known what sort of calendar Noah used to calculate his month dates, opinions differ as to what kind of year this was. The 150 days of the rising and prevailing waters, ending on the 17th of the 7th month, constitute exactly 5 months. Therefore each month had 30 days. Since this could not happen if the months were regulated by the

moon, which alternates 29 and 30 days, some would conclude that the Genesis account is based on a solar calendar of 30-day months, like that of the Egyptians. In that case the duration of the Flood was either 370 days or, if 5 extra days were reckoned at the end of the year, as in Egypt, it was 375 days. Others, however, think that a lunar year was intended, and that the ten days beyond one full year would indicate the difference between a lunar year of 354 or 355 days and a solar year of 365 days.

The Septuagint apparently means to imply that the original total represented a lunar year plus ten days, for it changes the duration to exactly one calendar year by translating the ending date as the 17th of the 2d month, the same day as the beginning, instead of the 27th. This looks like replacing one lunar year and ten days with one solar year, as more understandable in Egypt. There is insufficient basis, however, for conjecturing an antediluvian calendar from these dates, or for speculating on whether the “second month” was numbered from the spring or fall. Such considerations as the rainy season or the planting season in Bible lands are hardly relevant, since later conditions cannot be compared to the climatic conditions preceding or immediately following the Deluge. The month reckoning would probably be that Moses rather than that of Noah himself, and the spring-beginning year as a new reckoning introduced at the Exodus may or may not have been used by Moses in writing Genesis.

The Patriarchs From the Flood to the Exodus.—The patriarchs after the Flood are listed in Genesis 11. Arphaxad was born two years after the Flood, when Shem was 100 years old, Salah was born 35 years later, and Eber 30 years after that; and so the list goes on to Terah and Abram. However, Abram was not born when Terah was 70; this is a case similar to that of Shem, for Abram, though named first, was not the oldest son. When he was born his father was not 70, but 130 years old; for Abram was 75 when God called him to go to Canaan and made a covenant with him after Terah had died at the age of 205 (Gen. 11:32; 12:1–4). Although the list of the patriarchs with their ages ends with Abram (ch. 11:26), we are told that Isaac was born 100 years after his father (ch. 21:5), and Jacob 60 years after that (ch. 25:26).

The Genesis data on the patriarchs’ ages extend to Jacob’s entry into Egypt (ch. 47:9) at the age of 130. From this it can be computed that he was 91 when Joseph was born (see on ch. 27:1), but Joseph’s birth year offers no help in carrying the line farther; here the age data stop.

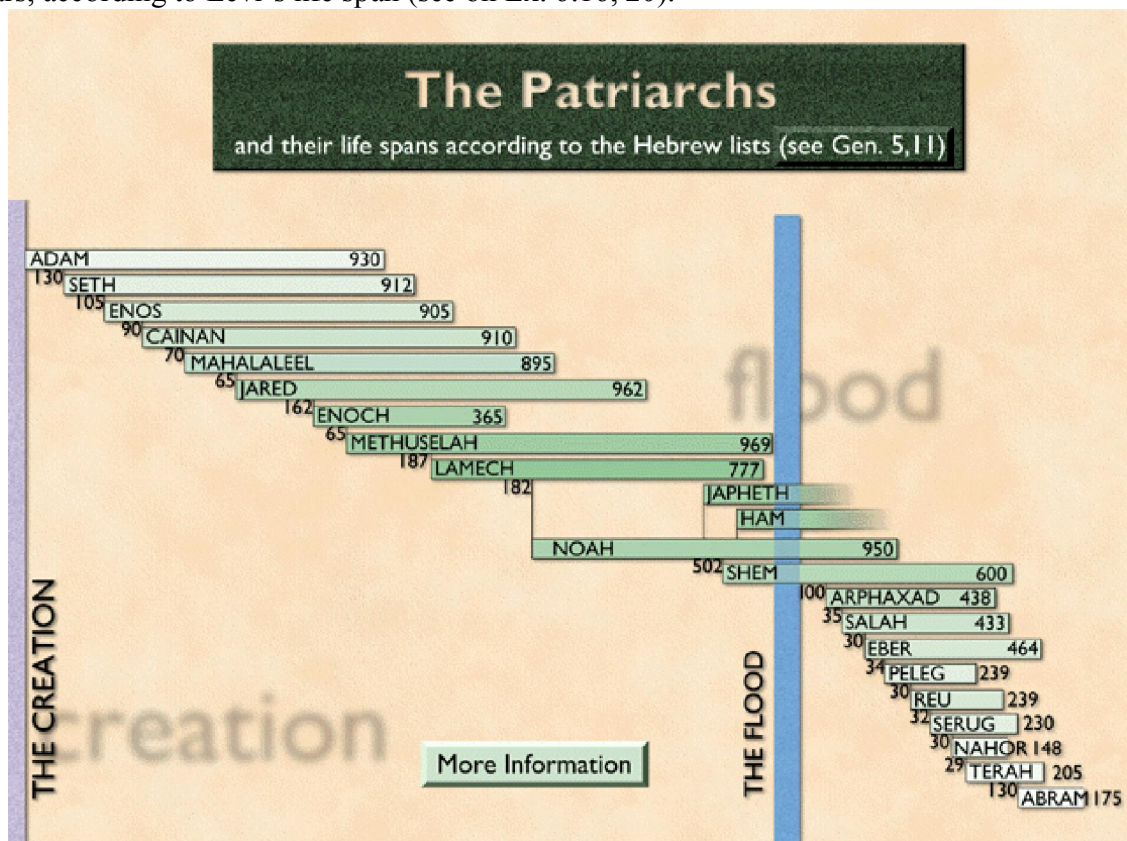
The interval from Jacob’s migration to the Exodus must be derived from the 430 years of Ex. 12:40, 41 (to be explained in the next section). Even with that, only if one can assume that no generation is left out in the lists of the patriarchs (see p. 186) is any continuous count possible from creation to the Exodus.

The Four Hundred and the Four Hundred Thirty Years.—Abraham’s “seed” would be “a stranger in a land that is not their’s,” would serve a foreign nation, and be afflicted; and the period was to last 400 years (Gen. 15:13). That the whole duration of the sojourning, servitude, and affliction was encompassed in the 400 years is not clear in the English, but it is indicated by the inverted parallelism of the Hebrew sentence (see on Gen. 15:13). Isaac, the appointed seed of Abraham whose descendants would see the complete fulfillment of this prophecy, was a sojourner, and began early in life to be “afflicted” by his rival, Ishmael (Gen. 21:8–12; see on Gen. 15:13 for the 400 years). Ending also at the Exodus is a period of 430 years covering the “sojourning” (Ex. 12:40), not merely the phases of servitude and affliction. This is explained by a New Testament

reference to the 430 years between the covenant with Abraham and the giving of the law at Mt. Sinai, soon after the Exodus (see on Ex. 12:40 and Gal. 3:17).

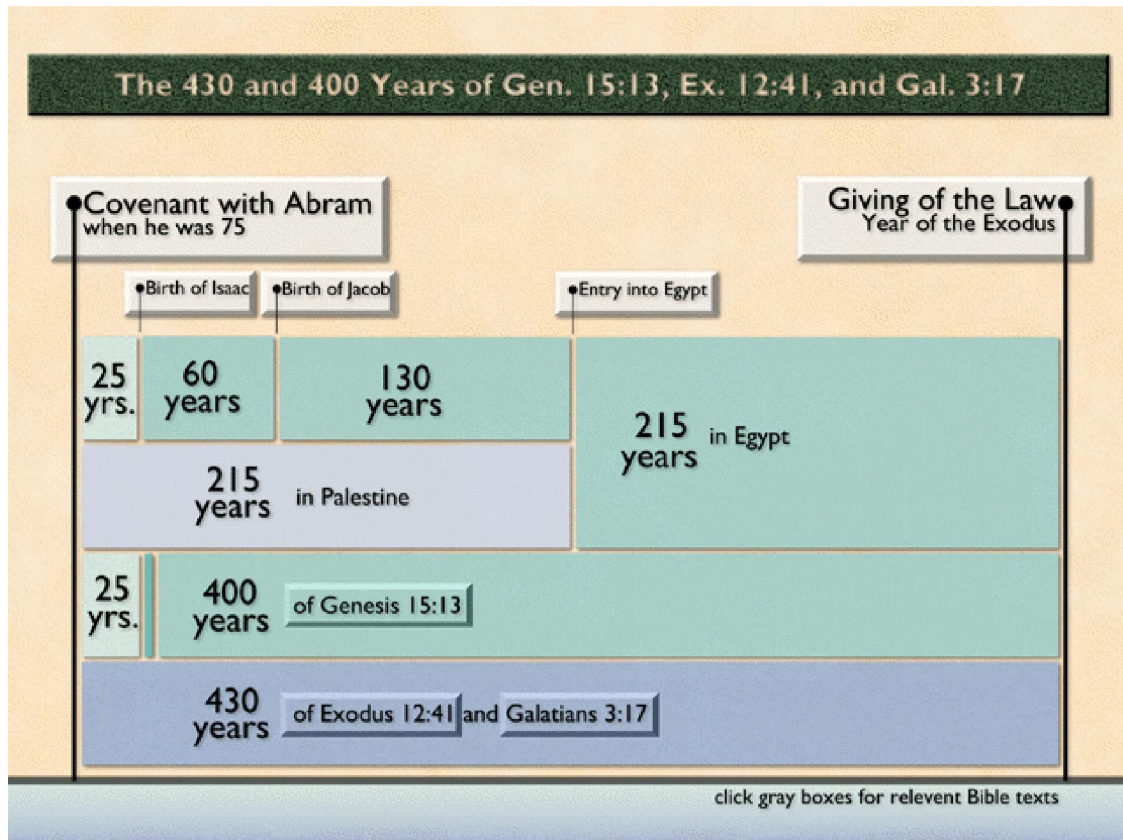
Both these periods can be harmonized (see the diagram on page 186) if the 430 years are counted from the call of Abraham, when he was 75 years old, and if the 400 years are reckoned from 30 years later, that is about the time when Isaac, as a small child, began to be persecuted by Ishmael after he was confirmed as the “seed” (Gen. 21:8–12). The Hebrew people called themselves both the “seed of Abraham” and the “children of Israel,” and Paul evidently interpreted the second phrase, used in Ex. 12:40, as meaning the first.

Two Hundred Fifteen Years in Egypt.—Popular and scholarly misunderstanding of these periods covering the sojourning and affliction of the descendants of Abraham has caused chronological confusion as to the time spent by Israel in Egypt. The interval between the call of Abram, at age 75, and the Exodus was 430 years, of which 215 had passed when Jacob went into Egypt (25 years to Isaac’s birth in Abraham’s century year, plus 60, Isaac’s age at Jacob’s birth, plus 130, Jacob’s age at his migration, a total of 215 years). Therefore the remainder of the 430 years, the Egyptian sojourn, was 215 years. If this seems a rather short time in Egypt, it should be considered that Moses was the grandson (also great-grandson) of Levi (Num. 26:57–59), who entered Egypt as an adult. This fact would not fit into an interval of 400 years, but would be quite possible for 215 years, according to Levi’s life span (see on Ex. 6:16, 20).



Was it 430 full years from Abraham’s call to the Exodus, or 429 full years—430 *inclusive*, by the reckoning most commonly used in Bible times? The latter would seem more likely if it were not for the specific wording of the text: “At the end of the four

hundred and thirty years, even the selfsame day” (Ex. 12:41). This would seem to indicate 430 elapsed years, ending on the day of the Exodus. Thus the reckoning is considered exact rather than inclusive.



A.M. Dating Not Conclusive.—Because the 430-year interval between Abraham’s years and the Exodus appears to attach the latter to the patriarchal genealogies, some have concluded that a continuous A.M. reckoning from creation can be linked with the B.C. dating. An A.M. Exodus date based on the patriarchs is entirely inconclusive. It must be remembered that these genealogies do *not* necessarily represent a complete year scale. Reasons have been given for preferring the ages of the patriarchs as given in the Hebrew text rather than in the Septuagint version. However, in using either reckoning we cannot exclude the possibility that some generations may not have been included. We remember that Luke lists the second Cainan (Luke 3:36). The correctness of the ages of the individuals does not imply the completeness of the list, for no total is given.

The Bible does not claim to be a complete record of all past history, and Bible genealogies do not always include every link in the chain; the Hebrew often uses the word “son” to mean grandson or descendant. This is evident in Ezra’s genealogy, which omits several links (Ezra 7:1–5; cf. 1 Chron. 6:7–9; Ezra 3:2); Matthew lists 14 generations from David to Christ, thus leaving out 4, for what reason he does not tell us (Matt. 1:8, 11; cf. 1 Chron. 3:10–12, 15, 16). The fact that sometimes one Bible writer omits what another includes does not invalidate the authority of either, but it should warn us against dogmatism on the date of creation, the Flood, or the Exodus, or on any chronology based on genealogical tables alone. Exact chronology is better reserved for the later centuries, where the Bible gives many exact time statements and synchronisms

that enable us to locate the B.C. dating of key events with certainty. If we accept Luke's second Cainan as indicating a link not mentioned in the Genesis list, we must lengthen the period from creation to the Exodus by at least one life span—how much more we cannot know since Luke gives no data for Cainan, and one omission implies the possibility of others. It is not necessary to suppose that gaps of that kind would be either extensive or important, but we should refrain from dogmatizing on the exact number of years between the creation and the Exodus, and from setting up any creation date based thereon. (The date of creation cannot be derived from the Biblical data.)

With caution, then, as to attempting any A.M. dating, we may proceed to the Biblical reckoning of the years of the wilderness wandering before taking up the theories by which various B.C. dates are assigned to the Exodus.

The Reckoning of the Years From the Exodus.—We find evidence of what approaches a reckoning by an era during the time of the 40 years' wandering. Shortly before the children of Israel left Egypt, the Lord instructed Moses that "this month shall be unto you the beginning of months: it shall be the first month of the year to you" (Ex. 12:2), and then proceeded with directions for holding the Passover on the 14th. The Israelites left Egypt immediately after the Passover, on the 15th (Num. 33:3) of the spring month then called Abib (Ex. 23:15; 34:18; Deut. 16:1), but later named Nisan (Esther 3:7), and still so called by the Jews.

Other dates are mentioned in this year, which was evidently counted as the first of the series, for the next year is called the second. The list of dated events shows this in tabulation:

	<i>Month</i>	<i>Day</i>	<i>Year</i>
Passover observed (Ex. 12:2, 6).....	1	13	[1st]
Departure from Egypt (Num. 33:3).....	1	15	
Manna given in Wilderness of Sin (Ex. 16:1)...	2	15	
Arrival at Sinai (Ex. 19:1).....	3	----	[1st]
(Moses' two 40-day periods on the mountain— Ex. 24:18; 34:28).....			
(Making of tabernacle and equipment)			
Tabernacle erected (Ex. 40:1, 2, 17).....	1	1	2d
Passover enjoined (Num. 9:1, 2).....	1	----	2d
Passover observed (Num. 9:5), evidently first time since Exodus (cf. vs. 6-14).....	1	14	----
Numbering of men directed (Num.	2	1	2d

1:1).....			
Departure from Sinai (Num. 10:11), nearly a year after arrival (PP 301, 302).....	2	20	2d
(Spies sent out in time of first ripe grapes, i.e. late summer—Num. 13:17-20)			
(Return of spies to Kadesh 40 days later; Israel sentenced to 40 years' wandering—Num. 13:25, 26; 14:33, 34)			
From Kadesh to crossing of Zared, 38 years (Deut. 2:14)			
Death of Aaron on Mt. Hor (Num. 33:38).....	5	1	40th
Israel at Zared (Num. 21:12) after Aaron's death (cf. Num. 20:27-29; 21:4-11).....	[6?	----	40th]
(Moses' death; 30-day mourning—Deut. 34:7, 8).....	[12?	----	40th]
Crossing of Jordan and encampment before Jericho (Joshua 4:19).....	1	10	[41st]
Passover kept in Promised Land (Joshua 5:10)	----	14	[41st]
Manna ceases (Joshua 5:11, 12), on 40th anniversary of the Exodus.....	----	[15]	[41st]

Note that the “second year,” on the first day of which the tabernacle was erected, had already begun before the first anniversary of the Exodus, for the Israelites did not leave Egypt until the 15th of the 1st month, after half the month was past. This day of the erection of the sanctuary was the 1st of the divinely appointed 1st month, for it is the month of the Passover. It is evidently the first Abib since the departure from Egypt (see on Ex. 40:2 and Num. 9:1, 2), for no one would argue for a stay of nearly two years at Sinai (see on Num. 10:11; cf. PP 301, 302). So “the second year after they were come out of the land of Egypt” (Num. 9:1) meant the year immediately following the one in which the Exodus took place (actually beginning 1 1/2 months after the date of departure, but the second year counted inclusively). It has been pointed out (see p. 182) that in the commonly used inclusive reckoning, expressions translated “after” often mean “within.” Indeed, the preposition used in this phrase “after they were come out”—literally “for

them to come out,” or “of their coming out”—is elsewhere rendered “within” a given time, as in Ezra 10:8.

The years as reckoned from the Exodus, then, were spring-beginning years, and the first of the series was the one in which the Hebrews left Egypt. If this series of years from the Exodus had been continued as an era for dating subsequent events, it would have greatly simplified the problem of Old Testament chronology. Unfortunately it was not so used, although the record of the sequence must have been kept, for we seem to find one more reference to it, in connection with the date of Solomon’s Temple (see pp. 191, 192).

IV. The B.C. Date of the Exodus

The Problems in Dating the Exodus.—It has been made clear why any A.M. dating, reckoned forward from creation and based on the assumption that the genealogies are complete, is only conjectural. We are in a better position to reckon backward to the patriarchs from later and better known periods, though not with complete certainty. The 430-year span from the Exodus back to Abraham locates that patriarch in the B.C. scale with the same degree of certainty as can be assigned to the year of the Exodus, depending on which of several methods one uses to arrive at a B.C. date for that event. From the Exodus the forty years of wandering are numbered continuously, as in an era (see p. 177); then in the conquest of Canaan and the time of the judges there are various periods, some of which obviously overlap. If the information were complete and precise down through the kingdoms of Judah and Israel, to the time when the line of Bible dating joins the fixed dates of ancient history, the B.C. date of the Exodus and many other events would be unquestioned.

But even among those who accept the Bible data as correct, there are differences of opinion as to the period of the judges, for example, and the rather complicated interrelations of the reigns of the two kingdoms. This commentary, incorporating what seems a reasonably workable chronology built on Bible time statements, does not set forth a dogmatic statement of the case. The last word has not been said on this subject, because future discoveries may add to our exact knowledge of those ancient times. But if any dates at all are to be included for the reader’s convenience, one system must be followed consistently.

The B.C. date of the Exodus presented in this volume has been chosen out of many advocated by different scholars because it seems, at present, to be the best explanation of the Bible data in relation to the available information, and it harmonizes with the chronology adopted for Volume II, covering the period of Israel and Judah. In order to evaluate this Exodus dating, a brief outline of the historical background of Egypt must be sketched here introductory to a survey of the principal theories of the Exodus, with a summary of the difficulties of each and the reasons why the 15th-century date is chosen.

The Historical Background in Egypt.—The Middle Kingdom in Egypt began during the Eleventh Dynasty. The first 150 years of the Twelfth Dynasty, which began in 1991 B.C., were the peak years, the classical period of Egyptian culture. At its end Egyptian power declined. The Thirteenth Dynasty was restricted largely to southern Egypt, and the contemporary Fourteenth Dynasty in the north was weak. After a period of preliminary infiltration, the country was overrun in the latter half of the 18th century by the Hyksos, whose rulers, the “Shepherd Kings”—a title more properly translated as “rulers of foreign countries”—formed the Fifteenth and Sixteenth Dynasties. These conquerors, predominantly Semites from the eastern Mediterranean lands, probably

included also non-Semitic Hurrians. Little is known of the Hyksos from the few records they left. They were not barbarous, for they probably introduced the horse and chariot, which the Egyptians afterward used to advantage in building their Asiatic empire. The Hyksos became Egyptianized, adopting Egyptian titles. They ruled as Pharaohs from a capital, called Avaris, in the Delta.

During the first half of the 16th century the first king of the Eighteenth Dynasty drove the hated Hyksos—at least the ruling class—into Palestine. Egypt, again powerful, extended her sway over Palestine and Syria to the Euphrates. Great wealth went into vast building operations. A notable ruler of this dynasty was Queen Hatshepsut, who was associated on the throne with her husband Thutmose II (c. 1508-1504 B.C.), and her nephew Thutmose III. She was herself the real ruler from about 1500 until she finally disappeared from history about 1482, probably disposed of by her co-ruler, Thutmose III, whom she had kept so long in the background. After her death her name was obliterated from many of her monuments and inscriptions. Thutmose III (c. 1482-1450) expanded the empire of Egypt to an extent never exceeded. The empire prospered through the reigns of Amenhotep II (c. 1450-1425), and Thutmose IV (c. 1425-1412) and well into the reign of Amenhotep III (c. 1412-1375). But in the latter's declining years the expanding Hittite empire menace Egypt's northern holdings in Asia, the Habiru or the SA-GAZ plagued parts of Syria and Palestine, and many of the Egyptian-held cities fought among themselves.

Then came Amenhotep IV (c. 1387-1366), a visionary, unfit or unwilling to wield the strong scepter that was needed to stave off decline. Taking the name Ikhnoton, he turned all his energies to religious reform; abandoning Thebes for a new capital dedicated to Aton (Aten), the sun disk, he suppressed all other cults. Meanwhile his Asiatic empire melted away. He ignored the frantic appeals for help from his loyal vassals in Palestine and Syria who were struggling against treachery and defection in the face of the menace of the SA-GAZ or the Habiru. Many of these letters were unearthed among the royal archives in the ruins of Ikhnoton's capital (archeologists refer to them as the Amarna Letters, from Tell el 'Amarna, the modern place name of the ruins).

After Ikhnoton, whose religious reform died soon after him, the dynasty ended with several minor Pharaohs. One of these was the boy-king Tutankhamen, who has achieved latter-day fame through the mere accident that his last resting place—probably modest in comparison with those of the great rulers—escaped the depredations of tomb robbers.

Early in the Nineteenth Dynasty, under Seti I (1318-1299), Egypt began to regain a measure of control in Palestine. The long and energetic reign of Ramses II (1299-1232) left a great impression on his age. From the fifth year of his son Merneptah we have an inscription on a commemorative pillar, or stele, indicating that the Israelites were then already in Palestine—the first mention of the name Israel outside the Bible, and the only one so far found in Egyptian records.

The Various Theories of the Exodus.—The numerous Exodus theories differ in the placement of the narrative in relation to the Egyptian dynasties as well as in respect to the reckoning of the 400 and the 430 years (whether including the time from Abraham or only the sojourn in Egypt). Aside from theories held by few or now no longer considered seriously in scholarly circles, there are three principal classes of these interpretations of the Exodus. These date the event respectively in:

- (1) the 15th century B.C., under the Eighteenth Dynasty;

- (2) the 13th century, during the Nineteenth Dynasty;
- (3) two migrations, under the Eighteenth and Nineteenth Dynasties.

There are plausible arguments both for and against all these datings. The last, however, which puts Joshua two centuries before Moses, does such violence to the Biblical record that it is out of the question for anyone who is seeking to build a chronology consistent with the Biblical data as we have them.

Outmoded and Minority Views.—The wide range of Exodus dating is illustrated by several theories placing it as early as the 17th century and as late as the 12th. One theory dated the Exodus in 1612, during the Hyksos rule in Egypt. This was based on a long reckoning of the period of the judges, assuming that the alternating judgeships and intervals of oppression were successive, totaling nearly 600 years; it fitted that into the 480-year period between the Exodus and Solomon by counting only the judgeships, not the interludes. Since Solomon cannot be shifted far, the longer the preceding period of the judges the earlier the Exodus must be dated. Another early-Exodus theory had the Hebrews leaving Egypt as part of, or along with, the defeated Hyksos in the 16th century (reminiscent of Josephus' identification of the Hebrews as the Hyksos). This required not 40 but 200 years of desert wandering in order to equate the Hebrews with the Habiru. It cannot be made to harmonize with either the Bible or the historical background, neither can the dating at the other extreme, a theory of a late 12th-century Exodus, in the Twentieth Dynasty.

These three types of Exodus datings will suffice as examples of the range of variation; they need not be examined since they receive little or no notice today. The three principal theories will be discussed next.

The Nineteenth-Dynasty Exodus.—The “traditional” theory, long commonly accepted, was that Israel was oppressed by Rameses II and left in his reign or that of his son Merneptah. This theory is still held by many writers, both in its original form and as the second phase of a double Exodus. The choice of Rameses as the Pharaoh of the oppression is based on the names of the cities of Pithom and Rameses, built by Hebrew slaves; on Rameses' capital being at Tanis, near Goshen; on the destruction of many Palestinian cities dated by archeologists in the 13th century; on a 430-year stay in Egypt; and on various elements of the archeological theories concerning that time, such as the late arrival of the Philistines, the absence of earlier pottery in certain regions, and conclusions drawn from certain Egyptian military campaigns. The unanswerable objection to this dating—if the Bible chronology is not to be ignored—is Merneptah's stele of the fifth year of his reign, referring to the Israelites as a people along with Palestinian places conquered. The Israelites could hardly have been already in Palestine in the fifth year of the Pharaoh of the Exodus even if they had migrated directly to Canaan. A desert wandering of 40 years (even if the vague meaning of “many years” is allowed) puts it completely out of the picture, to say nothing of other objections to the theory, such as the genealogical impossibility of 400 years from Joseph to Moses.

The Theory of a Double Exodus.—A Nineteenth-Dynasty Exodus, along with a 15th-century invasion of Canaan, is held today by many scholars who reconstruct the Biblical story completely, or rather separate it into two waves of migration. There are various views as to which tribes went into Egypt and when they left; as to which tribes never left Canaan or who may have remained in Egypt; or by what routes and in what order they invaded Canaan. The mere impossibility of harmonizing such an Exodus with

the 40 years or the 480 years is a minor objection indeed compared with the placing of Joshua 2 centuries before Moses, and compared with the uninhibited reinterpretation of the Bible account in regard to the patriarchs, the tribes, the geography, and the religion of the Hebrews.

This is not to belittle the scholarship that has been employed in this attempt to reconcile the Habiru invasion and other evidence pointing to a 15th century Exodus with the building of store cities for Ramses II and the late sacking of certain Palestinian towns. But the complexities of the various double-Exodus theories need not be discussed here, for a conservative commentary is written to throw light on the Bible account, not to revamp the story by conjecture to fit the selected historical setting.

The Eighteenth Dynasty Exodus Adopted in This Commentary.—There remains the theory that places the Exodus in the mid-fifteenth century (1445 B.C. or thereabouts). It has been adopted in this commentary chiefly because of the intervals between this and later Biblical dates. It can be explained in terms of the Bible narrative and the historical and archeological setting.

The date is based on a statement synchronizing the 480th year from the Exodus with the 4th year of Solomon, in which the foundation of the Temple was laid in the month of Zif (1 Kings 6:1). This year was, according to the chronology accepted for this commentary, 967/66 B.C., that is, the Jewish regnal year beginning in the fall of 967 and ending in the fall of 966 (see articles on the Jewish calendar and on chronology in Vol. II of this commentary). Thus the laying of the foundation in the month of Zif (approximately our May) would have occurred in the spring of 966 B.C. Then Zif in the 1st year, in which the Israelites left Egypt, was 479 years earlier than 966, which is 1445 B.C. This can be computed easily by the equation: If Zif in the 480th yr. = 966 B.C., then, going back 479 yrs. (479)Zif in the 1st yr. = 1445 B.C.

And Zif in the 1st year, beginning the 2d month, is the month immediately following Abib (or Nisan), in which the Israelites left Egypt. So the Exodus, derived thus from the dating of Solomon's 4th year as 967/66 B.C., would have occurred in the spring of 1445 B.C. if the 480th year is meant as an era date, and not as a round number.

This 15th-century theory of the Exodus can be harmonized with the 400 and 430 years as reckoned from Abraham. A 1445 Exodus would put Abraham's migration to Canaan in 1875 B.C., and his journey into Egypt soon after, at the very period from which we have an ancient record of a Semitic sheik traveling in Egypt with his family and a large retinue as traders (see p. 159 on a painting of this scene).

Joseph and Jacob, then, would be in Egypt 215 years before the Exodus, in the time of the Hyksos. The high honors bestowed upon Joseph have been regarded as most likely under a regime in which the Asiatic element predominated. Other details also fit into the picture. The statement that "Potiphar, an officer of Pharaoh, captain of the guard, an Egyptian," bought Joseph (Gen. 39:1) indicates a non-Egyptian dynasty; else why should it be noted particularly that the Pharaoh's captain of the guard was "an Egyptian"? Furthermore, the mention of horses and chariots (Gen. 41:43; 46:29) is regarded as harmonizing better with the Hyksos period than an earlier one, for it is generally accepted that there is no record of horses in Egypt before that time. Yet they were not imported rarities in Joseph's day, for the Egyptians sold their livestock, *including horses*, to the Pharaoh in exchange for food during the famine (Gen. 47:17). For other points see on ch. 39:1.

The story of Moses and the Exodus can be fitted into the historical setting of the reigns of Thutmose I through Amenhotep II. Thutmose I and Thutmose III carried on building operations by means of Asiatic slave labor. Hatshepsut as Moses' foster mother, Thutmose III as the king from whom Moses fled to Midian, and Amenhotep II as the Pharaoh of the Exodus seem to fit the possibilities of the Bible story. We have even the fact that the successor of Amenhotep II was an unforeseen heir to the throne—a circumstance that would be expected if the eldest son had died in the tenth plague. For a sketch of the harmony between the Bible story and the lives of these rulers, see the Introduction to Exodus and the comments on the chapters of the Bible narrative.

If the 40 years' wandering ended and the invasion of Canaan began about 1400, the inroads of the Hebrews were contemporary with the Amarna Letters. Although controversy has raged over the historical connection between the names, it is not unlikely that the Hebrews were a part of the Habiru mentioned in this correspondence as a menace to Syria and Palestine, for it was in this weak period of Amenhotep III and of Ikhnaton's indifference in regard to the affairs of the great Egyptian Empire that control of Palestine was slipping out of the hands of the Pharaohs.

Objections to This Dating Considered.—There are also objections against this 15th-century theory. It is pointed out that the date does not fit the total of the periods mentioned in the book of Judges, or the 450 years of Acts 13:19, 20 (KJV), for it is keyed to the 480 years of 1 Kings 6:1.

It is true that if all the year totals in Judges are considered successive periods, the sum is far beyond 480 years, but there is nothing in the book to rule out the conclusion that some of the judgeships were quite possibly contemporary, in different parts of the country. Since the theories of earlier or later Exodus dating must either squeeze the judges period into an impossibly small compass, or reconcile the 480 years with approximately 600 years by eliminating certain portions from the whole period, as has been explained, it seems reasonable to accept as literal the definite statement that Solomon began the building of the Temple in the 480th year from the Exodus, especially since the date thus arrived at can be harmonized with the other data.

A 1445 Exodus admittedly makes it difficult to account for the 300 years mentioned by Jephthah (see Judges 11:26), but it can be done by assuming a rapid disintegration after Jephthah, with short contemporary judgeships (see Vol. II, pp. 125, 128, 129).

As for the 450 years of Acts 13:20, there is a disagreement as to the original text of the statement, and there are differing translations of it in various versions. One reading makes the 450 years the period of the judges; the other, from different manuscripts, makes it the period preceding the judges. The second reading, regarded as better by modern scholars, is certainly more ambiguous. A literal 450-year interval between Joshua and Samuel cannot be fitted into the chronological scheme that puts the Exodus in the 15th century, for it is obviously incompatible with an interval of 480 years between the Exodus and Solomon. Those who take the long chronology (with the 480 years exclusive of the periods between the judgeships) use the 450 years similarly as the sum of only the actual administrations of the successive judges. On the other hand, those who hold the view of overlapping judges, with a much shorter total duration, can employ the 450 years, according to the other reading, as the period from the time of the seed—the beginning of the 400 years reckoned from the time when Isaac was 5 years of age. They account for the extra 50 years by the 40 years of wandering plus a hypothetical 10 years more before

the judges (see the article on chronology in Vol. II of this commentary). Both theories have difficulties and elements of personal opinion. Therefore it has been considered that the best course is to leave this ambiguous and controversial period out of the discussion as not positive enough to be used either for or against the theory of the 15th-century Exodus.

The Eighteenth Dynasty capital was at Thebes, several hundred miles from the land of Goshen. Yet the Hebrews were living near the royal palace, according to the story of the birth of Moses and to the account of the communication between Moses, the Israelites, and Pharaoh during the extended period of the plagues (possibly as much as a year). However, there was nothing to prevent the use of a second royal residence in or near the Delta at certain times, although there is no evidence for such a capital in the period assigned to Moses.

The 13th-century advocates point out the Nineteenth Dynasty names of the cities of Pithom and Rameses. However, the proponents of an earlier Exodus regard them as later forms substituted by scribes for the earlier names of the same cities (for example, Rameses had previously been called Zoan, Avaris, and Tanis). We might similarly speak of New York as having been founded by the Dutch, deeming it unnecessary to use the old name, New Amsterdam. Indeed, those who take the name "Raamses" (Ex. 1:11) as evidence of the Exodus under Ramses II must also explain away "the land of Rameses" in Joseph's day (see on Gen. 47:11) by a similar method. Then, if the name of the land need not be derived from the Pharaoh's name, neither does the name of the city.

Some argue that the story of Joseph and his family's migration to Egypt does not portray a Hyksos ruler favoring fellow-Asiatics, but rather an Egyptian rewarding a Semitic benefactor for services rendered, showing consideration to Egyptian prejudices by segregating the Hebrew shepherds in Goshen. The 15th-century advocates reply, in favor of the Hyksos dating of Joseph, that a later Egyptian Pharaoh would be too strongly anti-Semitic to bestow such high favors, and that the motive for the segregation may well have been less to spare Egyptian sensibilities than to protect the Hebrew shepherds from the ill will of their Egyptian neighbors. Similarly, Joseph's treatment of his brethren, although cited as an objection, illustrates the Egyptianized customs of Joseph himself, paralleling what might be expected from an Egyptianized Asiatic king.

It may seem illogical to portray the nationalistic Egyptians as expelling the hated Asiatic Hyksos, yet leaving in Goshen a community of Semites who had been favorites of the foreign regime. A possible explanation would be that the Hyksos who were expelled were the oppressive ruling class, and that many of their common people may have been left behind, regarded as harmless and possibly as a source of forced labor. We know too little to dogmatize on the subject.

The absence of Biblical allusions to Egyptian overlordship or military activities in Palestine has been considered out of harmony with the Israelite occupation of the land in the 15th century and onward. Actually the Israelites remained mostly nomadic hill dwellers until long after this period. They failed to drive out the town dwellers, and settled down outside many of the fortified cities, the centers of Egyptian control; and in the hills they would hardly have been touched by Egypt's coastal campaigns. Some of Israel's neighboring enemies mentioned in the Bible were possibly acting as vassals for Egypt.

The presence of late pottery in the cemetery of Jericho has been explained as belonging to later sporadic settlements while the city lay in ruins.

Another argument of 13th-century advocates against an earlier entry of Israel is the view (based on pottery bits found only on the surface, and not universally accepted) that Edom and Moab were not then settled nations. If the Edomites and Moabites were nomads in the 13th century, the absence of pottery from that period was to be expected.

It is not to be contended that all the Exodus problems can be solved at the present time, but the hindrances to arriving at a reasonable theory are not insuperable. The evidences examined seem to leave a 15th-century Exodus as a usable hypothesis for the purposes of this commentary—within the possibilities of the Bible narrative, also of *Patriarchs and Prophets*, and reasonably workable for the present in the framework of historical and archeological findings.

V. Earlier Chronologies Pivot on Exodus Date

Date of Creation Not Known.—Those who attempt to trace Bible chronology from the creation to the Exodus by the patriarchal lists, the Genesis narratives, and the 430 years extending from the call of Abraham to the Exodus (see p. 184) must assume that the patriarchal lists are complete. If the second Cainan (Luke 3:36) is added to the Hebrew list, if the possibility of gaps in the generations is allowed, or if the Septuagint enumeration is used, the patriarchal period must be longer than according to the Hebrew text (and the creation consequently earlier). Any B.C. dating of the patriarchs, by whichever method computed, would depend on the B.C. date of the Exodus.

The Exodus has been placed, in the present volume, on the basis of two premises, both to be discussed in Volume II: (1) the 480-year era from the Exodus to and including the 4th year of Solomon (1 Kings 6:1), and (2) the location of Solomon's 4th year by computation of the reigns of the Hebrew kings down to the time of Nebuchadnezzar. The result, as has been explained, is an Exodus date of 1445 B.C.

However, this volume assigns no dates to the period before Abraham. Since final conclusions cannot be reached, even by consistent computation from the Bible data, because of the possible undetermined variations (see page 186), this commentary does not attempt a complete chronology. Uncertainty is better than mere conjecture or the blind acceptance of a theoretical scheme such as Ussher's (see p. 179). Ussher arbitrarily placed creation, and began his A.M. 1, on the evening before October 23 (the Sunday nearest the autumnal equinox) in 4,004 B.C., that is, 4,000 years before Christ's birth, which he dated at 4 B.C. This was in harmony with the old 6,000-year theory that puts 4,000 years before Christ and 2,000 years after Christ.

This "6,000-year theory" should be defined to avoid confusion: It is *not* to be equated with the phrase "6,000 years" that has been used by many religious writers as a rough estimate of the time elapsed since Adam. It is, rather, a prophetic theory: namely, the view that the six days of creation week followed by the Sabbath, taken together with the statement that with God one day is as a thousand years and a thousand years as a day (2 Peter 3:8), constitute a prediction that the world will last 6,000 years, with the seventh thousand as the millennial Sabbath of rest. There is no 6,000-year prophetic period in the Bible. It originated in ancient mythology (Persian and Etruscan, for example) and in a Jewish analogy to the days of creation. It was Christianized by the Church Fathers and it persisted long after Ussher.

To say that the six days of creation week give no clue to the duration of this world is not to deny their reality or to allow interpreting them as long ages. Acceptance of a literal creation does not require assigning it to an exact year. The date of creation is not known, for the chronological data in the Bible are not continuous or complete. Nor can it be computed from astronomical cycles. See p. 179; see on Genesis 1:1; cf. PP 51, 3SG 92.

It is true that astronomical cycles enable us to date certain ancient events (including some in the Bible) *if* those events can be connected with contemporary astronomical records, especially of eclipses.

The first direct, contemporary links between Biblical years and the B.C. scale occur near the end of the kingdom of Judah, about 600 B.C., in the reign of Nebuchadnezzar, whose regnal years are astronomically fixed. Some cite an earlier date, 853 B.C., as the death year of Ahab of Israel, but the astronomical fix is not in that year; the synchronism depends on dead reckoning from an eclipse that occurred nearly a century later. In any case, from the kings of Israel and Judah back to creation the path crosses too many areas where differences of opinion exist.

Approximate Early Dates Sufficient.—Since we have a definite chronology for the later Old Testament times, especially from the time of the great prophetic periods, we should be satisfied with approximate dates for the earlier ages, where there is no fixed chronology that will pinpoint Biblical events. Estimates around the time of the Exodus and on are probably not far wrong. Even the various datings of the Exodus are not more than two centuries off in either direction from the dating adopted for this volume. Earlier than that a leeway of much more would be little enough. We may watch with interest the changes in historical chronology for the more ancient periods, yet there seems little chance so far of harmonizing the early dynasties of Egypt and Babylonia, for example, with the Bible chronology—if we take the Flood into consideration.

All Scripture is given by inspiration of God, even though Scripture does not profess to record all history. It is heartening to see how, wherever valid tests can be brought to bear, the Scripture record stands vindicated as accurate history. Chronology, the framework of history, is given to us in the Old Testament in a form that must be translated into our mode of reckoning before we can learn its meaning; the brevity and also sometimes the obscurity of the statements regarding it prevent us from claiming to have complete knowledge, but it is certain enough in the later period—especially by the time of Daniel and Ezra—to assure us that apparent difficulties are due to our lack of understanding.

Research based on archeology has solved many problems of chronology. We may hopefully anticipate the solution of most of the remaining problems as research continues

⁴Nichol, F. D. (1978). *The Seventh-day Adventist Bible Commentary : The Holy Bible with exegetical and expository comment*. Commentary Reference Series (Ge 1:1). Washington, D.C.: Review and Herald Publishing Association.